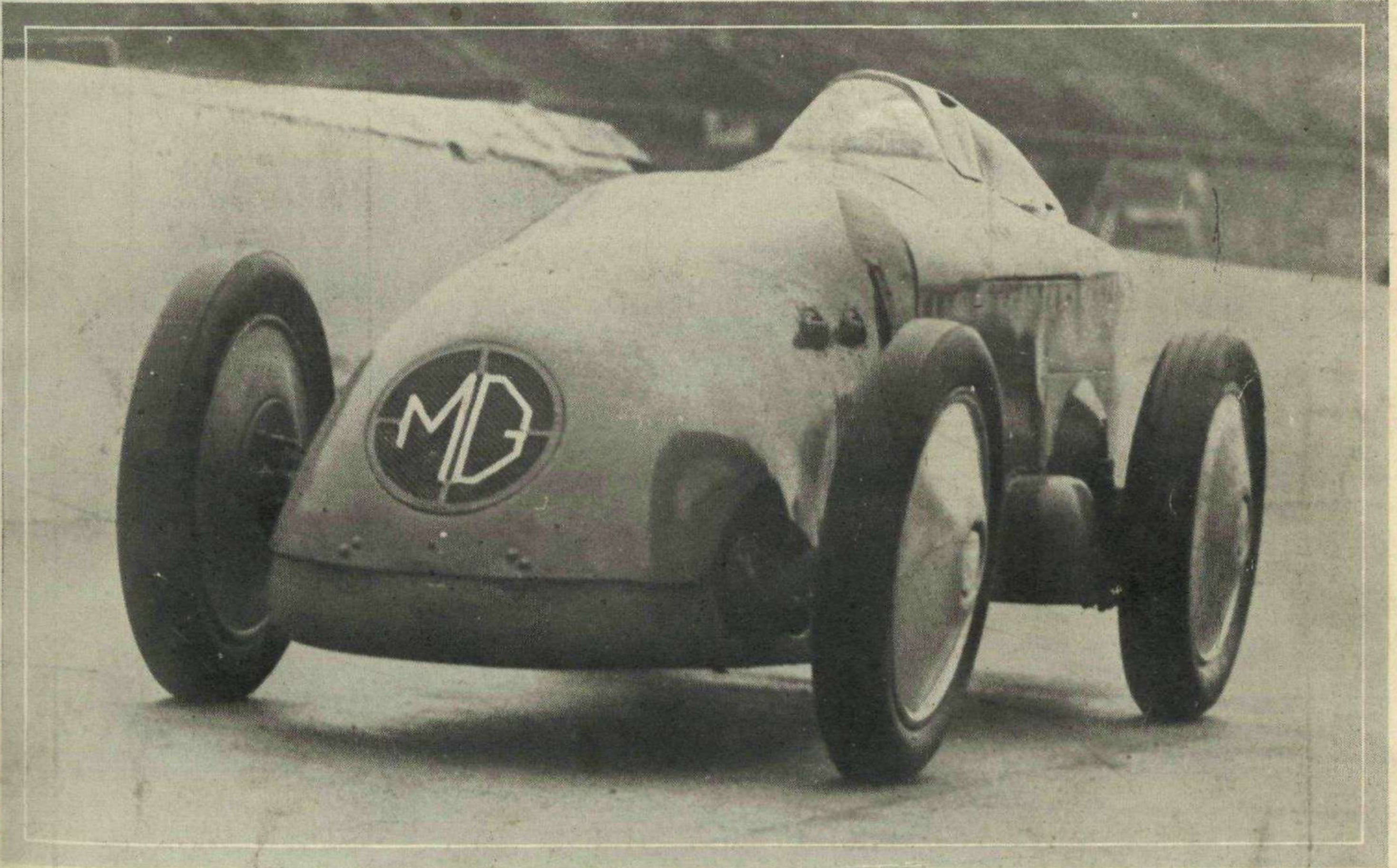
Vol. IX. No. 3 *January, 1933*

MOTOR SPORT

LAND - AIR - WATER

SIXPENCE MONTHLY



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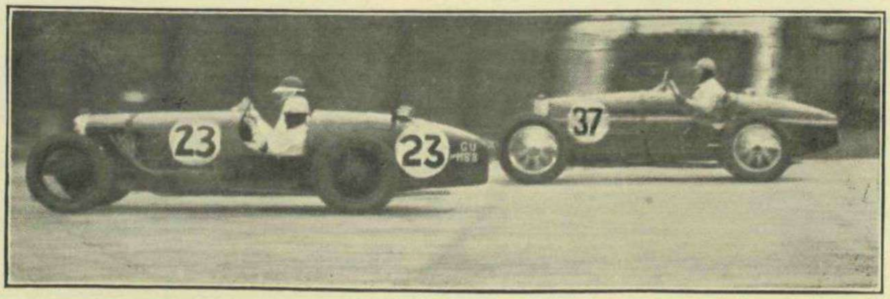

A broadside ‘ shot of Earl Howe's Bugatti sweeping by C. G. M. Boote's Riley.

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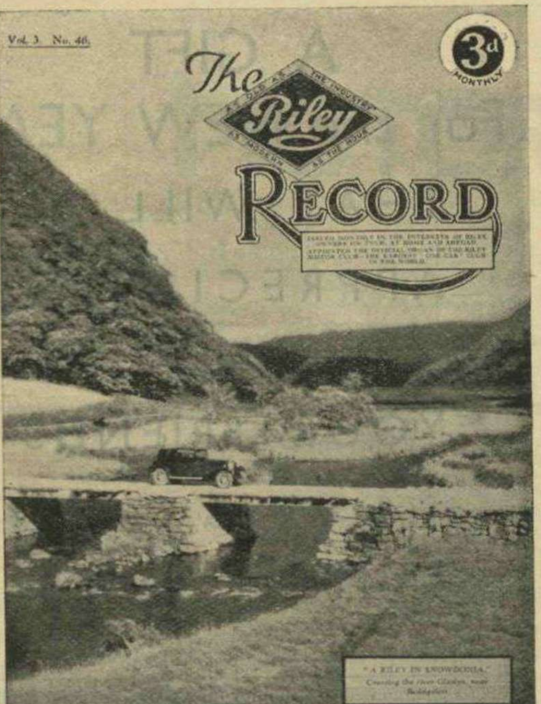

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EDITORIAL.

A PROMISING NEW YEAR

THE New Year! After two or three months of desolation that a long winter has to be faced, brightened only by ocasional Trials, we can now feel that the next season is coming rapidly nearer.

Continental racing is assured of a full spell for 1933, both for competitors and spectators. Alfa Romeo will continue to race the 2.6 litre single seaters; Maserati has already built his single seater 3 litre cars; Bugatti will send to the line a team of new 2.8 litre racers; and Mercédès-Benz will be represented throughout the season by a trio of specially built cars. What a magnificent prospect! How lucky are Continental spectators to have the chance of seeing a battle of such closely matched giants at the cost of only a train-journey! And they will not be slow to take advantage of their good fortune, for last year they turned up in their hundreds of thousands at every race.

Were it not for various projects—of which more anon—this exciting outlook might well plunge English enthusiasts into the deepest gloom. They would feel that motor racing is enjoying a hey-day on the Continent which will be looked back upon in years to come in the spirit of "those were the days!" For without a road course of our own to attract foreign competitors to our shores, England will not see a road race; English cars will not take part in Grand Prix racing; and English drivers will be forced to drive foreign cars on foreign roads in order to enjoy the greatest sport in the world. England, with the finest roads in the world, the finest sports cars, and thousands of motor-racing enthusiasts, has no road race of its own.

But enough of this melancholy! In the project for the construction of a road-race course at Ivinghoe, only 30 odd miles from London, England has the means to become a power to be reckoned with in the motor-racing world. English manufacturers will once more be able to compete on level terms with foreign competition Our drivers, too, having a difficult road circuit, at their constant disposal will have no difficulty in holding their own with the Continental "aces" of to-day.

Still further to encourage the sport of road racing in Gt. Britain, two races to be held in 1933 are worthy of all the support that enthusiasm can give them. We refer to the J.C.C. race at Brooklands, and the R.A.C. event at Douglas, in the Isle of Man. The first is yet another proof of that spirit of pioneering which has ever placed the J.C.C. in the forefront of our clubs. Of the latter race, we feel with Sir Henry Birkin that, "why must we be sea-sick to watch our road racing?"

With the sport booming more than ever on the Continent and a widespread interest in it being shown at home, the time has come when a definite step must be taken to construct an English road course. We cannot do better than by again quoting Sir Henry, "The cross-roads are reached now, offering the alternatives of continued lethargy and probable irretrievable loss of reputation or of advance towards the recovery of prestige."

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WATER.

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THE LONDON-GLOUCESTER TRIAL

RECORD ENTRY AND PERFECT ORGANISATION ENSURE SUCCESS OF THE N.W.L.M.C.'s ANNUAL TRIAL

THE North West London Motor Club deserve every success with their annual London to Gloucester Trial. To begin with, it is a real trial, and makes severe demands on cars and drivers alike if a premier award is to be gained. Those who want hills will find them here in plenty, Maiden's Grove, Stancombe, Bismore, Mutton, Knapp, Bownham, Bushcombe, Iles Lane, Quarhouse, Bussage and Ferris Court, while the competitive element is encouraged by the acceleration test on Bismore, the restart on Bushcombe, and the timed ascent of Ferris Court.

Wolseley Hornet Specials were outstandingly good on Iles Lane. Our photograph shows F. S. Hutchen (E.W. Daytona).

Starting from the Bridge House Hotel, Staines, a little after midnight, everyone was relieved to find that although the wind was bitingly cold, there was not a hint of rain, and the surface of the many hills to be encountered would be as good as one can hope for in December. Maiden's Grove, the only hill to be climbed at night, was in splendid condition, and did not bother anyone, and so competitors made their way via Oxford, Chipping Norton, Broadway, Winchcombe to Cheltenham, where the cars were parked in Steels yard while their crews partook of large breakfasts at the Cadena Café. For some unknown reason, two mishaps occurred during the night run. M. M. Woodford misjudged the descent of Fish Hill, Broadway, and inverted his Frazer Nash without injury either to himself or to his passenger. The second accident, unhappily, was not without serious results. A. G. Wincott, in a Riley Gamecock which still bore its racing numbers from the Half Mile Speed Trials at Brighton last summer, went off the road at a corner and hit a tree. Wincott escaped injury, but his passenger, Richard Long, was killed.

The next morning hill-climbing was begun in earnest. Stancombe was in kindly mood and stopped no one, and the next obstacle, the acceleration test on Bismore, merely gave some of the snappier sports models a chance to show off their merits. Fastest of all, up the 60 yard section was H. J. Aldington (Frazer Nash) in 8 3/5 secs., but R. R. K. Marker (Bentley) was only 1/5th secs. slower. Other good times were made by M. A. McEvoy (McEvoy Hornet Special) and J. A. M. Patrick, also on a Hornet, most of the M.G. Magnas and all the V8 Fords.

Heavy cars were not favoured by the surface of Iles Lane, but Oliver Bertram (Vauxhall) got farther than most before failing. [Motor Sport photographs

Then came Mutton, which caused more difficulty than any other hill throughout the day. The sharp right hand bend at the foot slowed cars down to such an extent that no momentum was left with which to tackle the steep bit which followed. A quick corner was half the battle, and in this manoeuvre the smaller machines were favoured. Outstandingly good were the new Singer Nine sports models, which sounded full of "pep" and were definitely masters of the gradient. Of the larger cars the V8 Fords were smooth and powerful, but Bertram's Vauxhall stopped with wheelspin. In all 21 cars failed to reach the summit, but these were more than counterbalanced by a number of excellent performances, notably by several J.2 M.G. Midgets, Couldrey's Essex Terraplane, Miss Montague-Johnston's Magna, and Mrs. Needham's Invicta.

Knapp was the next acclivity to be tackled, but was not difficult, although Mrs. Needham (Invicta) hit the wall with a bang and dislodged some rocks; a Morris Minor made some funny noises at the top; and Miss Marshall (Douglas) hit the wall and, not unnaturally, stopped. This was followed by Bownham, a straight hill with good surface of the type to encourage fast climbs. Here V8 Fords excelled, as did sundry Hornet Specials, Magnas and some irrepressible £100 Morris Minors. A praiseworthy effort was that of F. M. Shepherd's old 10/23 Talbot, which came up well.

After a fast drive over good roads, a halt was made at the check at the White Swan Inn, after which the re-start on Bushcomb was tackled. Here the surface was in excellent condition, and caused few failures, although by the time the big cars arrived at the hill a slippery rut had been made on the restart line. 20 yards had to be covered in under 8 seconds and most of the competitors had no difficulty in beating this limit. Actually, fastest time was made by three lady drivers in 4 3/5 seconds, Miss Montague-Johnstone's M.G. Magna, Mrs. C. M. Needham's Invicta, and Miss Weekes' V8 Ford. Many of the sports cars were

THE LONDON-GLOUCESTER TRIAL—cantinued.

unable to give a good account of themselves, through being overgeared, notably the Altas, all of which failed. Shepherd appeared on his old Talbot, but realising that it would be fatal to stop, frantically waved aside the restarting marshal. Again the Singer Nines were really good, displaying plenty of power. W. H. Aden, (M.G. Midget), J. R. G. Finch (Alta), A. L. Watson (M.G. Midget), G. W. E. Armstrong (Salmson), G. H. P. Scott (Alta), W. H. Green, (B.S.A.), F. Allott (Hornet Special), J. J. Dykes (Riley 12), all stopped either in or just out of the timed section, while M. Aldridge (Austin 7), R. J. B. Coath (Armstrong-Siddeley), O. Coryton (Horstmann), L. B. Henderson (Frazer Nash) and J. G. Pigé-Leschellas (A.C.) were over the 8 seconds limit.

Competitors approached Iles Lane with a certain amount of trepidation, for last year this muddy hill caused something of a *debâcle*. Naturally the first arrivals had the best surface, for after a few cars had spun their back wheels gently to rest the mud began to be churned up into a treacherous consistency. G. H. P. Scott (Alta) realising that his high bottom gear demanded high speed to rush the hill, came up at a great pace. The state of the hill, though good, required careful handling, and many failures could have been avoided by a judicious lifting of the throttle pedal. The Singers were all good, as were the Frazer Nashes, the V8 Fords (which looked as though they could climb anything) and many Hornets and Magnas, notably F. S. Hutchens (Hornet), Miss Montague-Johnstone (Magna) and Mrs. Needham (Invicta) who made a quiet safe climb without any fireworks. Mrs. A. G. Gripper found her Hornet dying right at the top so hastily pulled out the choke lever and fluffed over the summit on a rich mixture. Many big cars failed and quite a few small ones, of which we noted Finch (Alta), V. H. Tuson (Fiat), Armstrong (Salmson), Shepherd (Talbot), W. H. Green (B.S.A.), W. H. R. Webb (Riley), C. Knight (M.G. Magna), A. B. Langley (M.G. Six), D. Pamphlett (Talbot), Mrs. Stanton (Alpine Riley), W. M. Couper (Lagonda), R. R. K. Marker (Bentley), J. S. Couldrey (Essex Terraplane), Oliver Bertram (Vauxhall) and H. S. Linfield (Rover Speed Model). A competently handled team of horses coped with the failures quickly and reduced the delay to a minimum.

Bussage and Quarhouse were both easy, though the slippery setts on the left verge of the former were the cause of five cars coming to a standstill, among them Marker's Bentley and Bertram's Vauxhall. Finally came the timed ascent of Ferris Court. A time of 35 seconds was allowed for the 200 yards, and 30 failed to climb within this limit. Fastest of all were J. A. M. Patrick (Hornet Special), A. C. Fairtlough (Salmson) and M. A. McEvoy (Hornet Special), while most of the Magnas, Rileys and M.G.'s were good, and, of course, all the V8 Fords.

The stop and restart test on Bushcombe caused a good many failures ; J. R. G. Finch's Alta was too high geared.

[*Motor Sport Photographs.*

One of the best climbs of Iles Lane was made by S. C. Nash's old Alvis, which gained a Silver Cup.

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THE LONDON-GLOUCESTER TRIAL—continued.

At last the finish at the Bear Inn near Stroud was reached, where all but eighteen of the 125 starters failed to turn up. Two cars bore traces of a certain amount of wear and tear, namely, Miss Montague-Johnstone's Magna, which lacked a rear mud-guard, and G. May's old Alvis, which had a battered off-side body. Special praise should be given to O. Coryton and his passenger who got through to the finish on an ancient Horstmann chassis with home-brewed body, complete with sack of sand at the rear to hold the tail down—a stout effort.

The following provisional results have now been issued by the North-West London M.C.

Gloucester Cup: J. A. M. Patrick (Wolseley Hornet). **S. Midland Centre Plaque:** A. C. Fairtlough (Salmson). **President's Cup:** C. Mann (Ford). **Committee Cup:** J. G. Tice (Standard). **Ladies' Cup:** Miss J. Weekes (Ford).

Team Award: M.G. Magna team: G. M. McGregor, G. H. Robbins and F. Sforza.

850 c.c. Cars.

Silver Cups: G. E. Taylor (M.G. Midget), A. W. F. Smith (M.G. Midget), J. S. Harrison (M.G. Midget) C. Giglio, Morris Minor), R. A. Macdermid (M.G. Midget).

Silver Medals: R. C. Morris (Morris Minor Arrow), A. L. Watson (M.G. Midget), J. A. Bastock (M.G. Midget), W. W. Whitnall (Morris Minor), N. A. Prince (Austin), R. Livesey (Morris Minor).

Bronze Medals: W. H. Haden (M.G. Midget).

1,100 c.c. Cars.

Silver Cups: H. M. Avery (Singer), R. J. W. Appleton (Riley), W. E. C. Greenleaf (Riley), W. S. Barnes (Riley), J. S. Drewett (Riley), J. S. Fruin (Singer), N. H. Cole (Singer), A. T. Gamble (Riley), R. C. Player (Riley), O. H. Lawford (Singer), W. J. B. Richardson (Singer).

Silver Medals: G. E. Vaughan (Riley), I. S. MacDonald (Riley), V. H. Tuson (Fiat), D. J. C. Gamble (Riley).

OBSERVE SECTION ENDS
N

Bronze Medals: G. H. P. Scott (Alta), Mrs. C. Scudamore (Singer), W. H. R. Webb (Riley).

1,600 c.c. Cars.

Silver Cups: Miss P. Goodban (Wolseley Hornet), Miss B. Daniell (Wolseley Hornet), G. W. Olive (Standard), W. A. V. Davis (Wolseley Hornet,) R. J. B. Seaman (M.G. Magna), Miss D. Montague-Johnstone (M.G. Magna), G. M. McGregor (M.G. Magna), G. Wood (M.G. Magna), A. Langley (M.G. Magna), J. R. H. Baker (M.G. Magna), G. H. Robins (M.G. Magna), A. Ashton Rigby (Wolseley Hornet Special), D. West (Frazer-Nash), F. Sforza (M.G. Magna), G. H. Hill (M.G. Magna), S. C. Nash (Alvis), R. C. Vickers (Wolseley Hornet), M. A. McEvoy (McEvoy Wolseley Hornet Special), F. S. Hutchens (Wolseley Hornet), W. E. C. Watkinson M.G. Magna), V. W. Derrington (Wolseley Hornet Special), Miss M. Allan (Wolseley Hornet).

Silver Medals: A. Allott (Wolseley Hornet Patrick Special), Mrs. O. Clayton (Frazer-Nash), Miss R. Game (Wolseley Hornet), P. Lees (Frazer-Nash), C. Knight (M.G. Magna), A. F. Scroggs (Trojan), J. M. Kenion (Wolseley Hornet), A. G. Gripper (Frazer-Nash), Mrs. A. G. Gripper (Wolseley Hornet), H. J. Aldington (Frazer-Nash).

Bronze Medals: R. J. B. Coath (Armstrong Siddeley), L. B. Henderson (Frazer-Nash), O. Coryton (Horstman).

Cars of Unlimited c.c.

Silver Cups: M. May (B.P. Special), J. Harrison (Ford), Hon. A. D. Chetwynd (Ford), G. M. Denton (Ford), J. G. Tice (Standard), Miss J. Weekes (Ford).

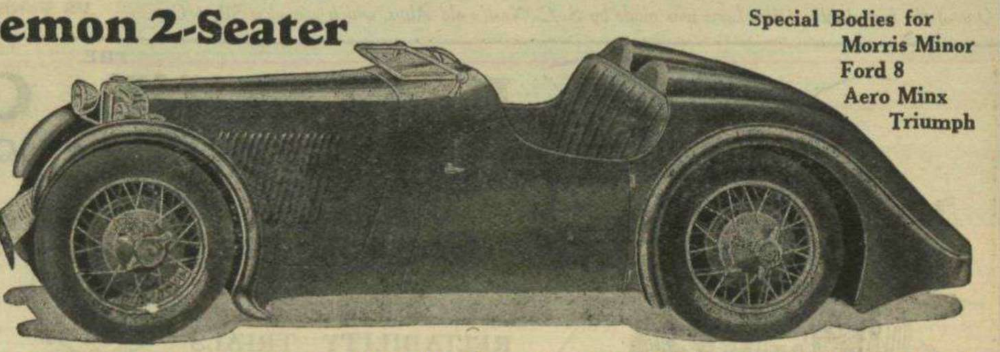
Silver Medals: Mrs. A. Needham (Invicta), A. Powys-Lybbe (Talbot), J. S. Couldrey (Essex), J. G. Pigê-Leschallas (Acedes), J. R. Niemeyer (Hillman), J. D. Windle (Frazer-Nash).

Bronze Medals: A. B. Langley (M.G.) Mrs. M. Stanton (Alpine Riley), D. Pamphlett (Talbot), W. M. Couper (Lagonda), R. R. K. Marker (Bentley), E. P. Ortweiler (M.G.), H. S. Linfield (Rover), O. Bertram (Vauxhall).

THEY REALLY FLY!

One of the most original forms of car mascot to be introduced is the "Flying Mascot" which MOTOR SPORT readers will no doubt have noticed on many vehicles recently. This new mascot is an exact reproduction of a sea swallow, and as soon as the car begins to move the wings rise and fall in a most realistic manner, the movement never rising in frequency beyond a certain point, no matter how high is the speed of the car. This realism is heightened by the fact that any reduction in speed causes the wings to stop, outstretched, in a gliding angle.

The "Flying Mascot" is entirely British made, and its working parts are entirely enclosed and made of case-hardened steel. It is sold in two sizes, and sells at £4 4s. and £2 12s. 6d. by Flying Mascots Ltd., 199 Piccadilly, W.1.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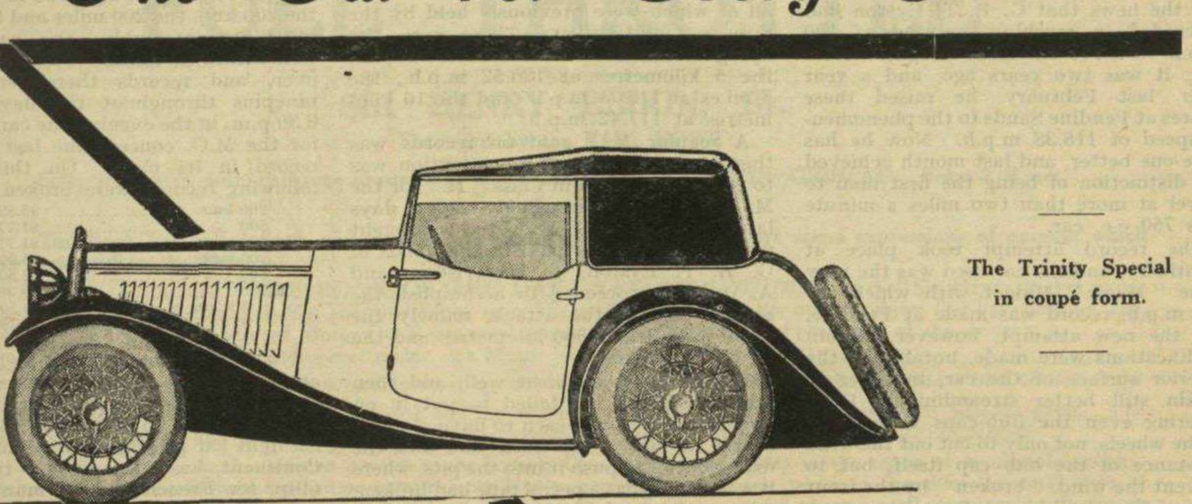
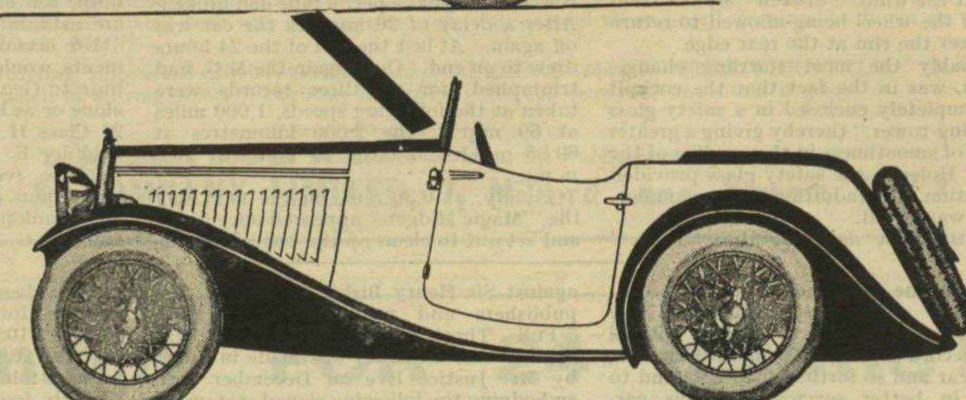


The Trinity Special in coupé form.



The same car as an open two-seater.

TRINITY COACHWORK

TRINITY SPECIAL

(PATENTS PENDING).

In coupé form this car provides true saloon comfort. The equipment includes winding windows, rear blind and interior light. The rear of the head is panelled to produce pleasing shape and to ensure absolute rigidity.

In a few seconds the coupé can be converted into a smart open four-seater or a most attractive two-seater. There are no loose parts to be mislaid or damaged and there is nothing in the car's appearance to betray its convertibility.

THIS EXCLUSIVE COACHWORK IS AVAILABLE ON :—

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12 h.p. ; 14 h.p.

M.G. Midget £275
Magna £325

WOLSELEY HORNET SPECIAL - £289

B.S.A. 9 h.p.
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AN ASTOUNDING SERIES OF RECORDS.

All International Class H Records now held by M.G.

IT seems only a short time ago that the motoring world was astounded at the news that G. E. T. Eyston had succeeded in reaching a speed of 100 m.p.h. in a 750 c.c. M.G. Midget. Actually, it was two years ago, and a year later, last February, he raised these figures at Pendine Sands to the phenomenal speed of 118.38 m.p.h. Now he has gone one better, and last month achieved the distinction of being the first man to travel at more than two miles a minute in a 750 c.c. car.

The record attempt took place at Montlhéry, and the car used was the very same "Magic" Midget with which the 118 m.p.h. record was made at Pendine. For the new attempt, however, certain modifications were made, notably to the exterior surface of the car, in order to obtain still better streamlining. Discs covering even the hub-caps were fitted to the wheels, not only to cut out the wind resistance of the hub cap itself, but to prevent the wind, "broken" by the front edge of the wheel being allowed to return and meet the rim at the rear edge.

Probably the most startling change, though, was in the fact that the cockpit was completely enclosed in a safety-glass "conning-tower," thereby giving a greater degree of smoothness in the top line of the body. Holes in the safety glass provided ventilation. In addition, a new undershield was fitted.

On the first day out the "Magic" Midget proved to be in great form, beating five International Class H records, all of which were previously held by the same car and driver. These were, the flying kilometre and mile at 120.56 m p.h., the 5 kilometres at 120.52 m.p.h., the 5 miles at 116.71 m.p.h. and the 10 kilometres at 117.42 m.p.h.

A regular M.G. raid on records was thereby initiated, and the intention was to get every record in Class "H" for the M.G. concern. Accordingly, a few days later a standard J.3 Midget was brought out onto the Track, and in the hands of G. E. T. Eyston, T. H. Wisdom and A. Denley, proceeded to accomplish the second part of the attack, namely the 1,000 miles, the 2,000 kilometres and the 24 hours records.

For 4½ hours all went well, and then the little green car failed to put in an appearance. It was seen to have stopped on the far side of the track, and then the driver began to push it into the pits, where it was found that a petrol pipe had broken. After a delay of 26 minutes the car was off again. At last the end of the 24 hours drew to an end. Once again the M.G. had triumphed, for all three records were taken at the following speeds, 1,000 miles at 69 m.p.h., the 2,000 kilometres at 69.95 m.p.h., and the 24 hours at 70.6 m.p.h.

Finally, at 6.30 a.m. on the next day the "Magic Midget" appeared once more, and set out to clean up the bag of records in Class H. Eyston drove first, and lapping steadily at about 95 m.p.h., broke the 200 km., the 200 miles and the 3 hours records comfortably, the car running well within its limits. Then Denley took over, and records thereafter fell like ninepins throughout the day, until at 6.30 p.m. in the evening the car had taken for the M.G. concern the last remaining record in its class. On this run the following records were broken :—

200 kms.	95.52 m.p.h.
500 ,,	91.77 ,,
1,000 ,,	91.77 ,,
200 miles	95.02 ,,
500 ,,	92.50 ,,
1,000 ,,	88.36 ,,
3 hours	94.59 ,,
6 ,,	92.79 ,,
12 ,,	86.67 ,,

No praise can be too high for this amazing series of new records, for the M.G. Midget is the first car to hold all records in any International Class. British light car prestige, always high on the Continent, has been given a tremendous fillip, for French and German motorists are astounded at the car's performance.

No account of the Midget's achievements would be complete without a tribute to George Eyston, who holds, either alone or as leader of a team, 22 out of the 24 Class H records, the other two being held by E. R. Hall.

These records are nothing short of marvellous. B.P. Plus petrol, Castrol oil, Dunlop tyres, Jaeger instruments and K.L.G. Plugs were used.

The Motorine Log Book.

EVERY good motorist makes a New Year resolution to keep a faithful record of petrol and oil consumption, tyre wear and so forth, which is bound to result in better service from his car. Human nature being what it is, however, the bother of drawing up a note book to record all the necessary items is usually too much trouble. The publication of the Motorine Log Book, which is put on the market at 3/6, by the Price's oil people, supplies the need and provides space in addition for recording tyre, gear box, and other attentions, and even for "noteworthy runs." Average-speed fiends please note!

In addition to this, the Log Book provides Main Road Maps of Great Britain, an article by Mr. S. C. H. Davis on "Better Driving," and others on touring at home and abroad, also on tuning for speed. Last and not least is a Table of Recommendation setting forth the correct grade of Motorine oils for all makes of private cars. The interior is protected by a leather cloth cover with a snap button, and the printing is clear and the paper good.

The book is well worth the price at which it is offered, but motorists are able to secure a free copy by simply purchasing one gallon of Motorine oil, or alternately draining their engine and refilling with Price's Motorine. On forwarding a receipt for the purchase of the oil to Price's, Belmont Works, Battersea, London, S.W.1, a free copy of the Motorine Log Book will be forwarded by return of post.

Sir Henry Birkin and Brooklands.

In the action for alleged libel brought by the Brooklands Estate Company against Sir Henry Birkin, Bart., and the publishers and printers of the book "Full Throttle," a settlement was reached and an Order was made in Court by Mr. Justice Eve on December 2nd, embodying the following signed statement by Sir Henry Birkin, Bart. :—

"My attention having been called to the fact that certain criticisms of the Brooklands Track made in this book may be construed as a reflection upon the Proprietors of the Track and the Brooklands Automobile Racing Club, of which I am a member, in their conduct of the premises, I wish, unreservedly, to state that such was never my intention and that if, in my advocacy of that I believe to be a matter of supreme importance to the future of British prestige in the motoring world, I have in any way exceeded the bounds of fair and reasonable comment, I unreservedly withdraw such statements and tender my apologies for the publication thereof. I am assured, and fully accept the statement, that there have been no fatalities at Brooklands due to the condition of the Track and I am aware of the stringent regulations laid down by the Club to prevent accidents."

The publishers of the book have undertaken that a copy of the above signed statement will be included in every copy of the book issued and that, so far as is possible, they will be incorporated in copies that have already been distributed for sale.

Conquest of the Alps.

One of the most, if not the most coveted trophy that can be won by a manufacturer of sporting cars is the Coupe des Alpes, which is awarded for the best performance in each class of a team of three cars in the annual Alpine Trial. In 1933 a team of Talbot "105's" gained this great honour, and the story of this gallant exploit has been re-told in a very attractive booklet recently issued by Clement-Talbot, Ltd., entitled "Conquest of the Alps"!

All who take pride in the furtherance of British prestige abroad will derive great enjoyment from the booklet, which is fully illustrated, and makes delightful reading. A limited number of copies is available to MOTOR SPORT readers on application to Clement-Talbot, Ltd., Barlby Road, Ladbroke Grove, London, W.

The Luck of the Game.

At the recent luncheon given by Sir William Morris to successful racing drivers during 1932, a booklet entitled "The Luck of the Game" was given to each guest, with his name printed thereon in gilt letters.

Now a limited number of copies of this interesting booklet are available to readers of MOTOR SPORT on application to the M.G. Car Company, Ltd., Pavlova Works, Abingdon on Thames. The text of the 18 pages is written by the ever popular Mr. Cecil Kimber, founder and Managing Director of the M.G. Company, and the book is really profusely illustrated. Not all the photographs are of M.G.'s and in fact the "Luck of the Game" is a condensed history of all the races in which Midgets took part in 1932. There is a Foreword by George Eyston, and Cecil Kimber pays a tribute to Sir William Morris, "a figure . . . of the greatest significance behind the scenes of the M.G. Car Company."

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FULL THROTTLE

BY

SIR HENRY BIRKIN, Bt.

Foreword by the EARL HOWE

Fully illustrated with half-tone illustrations and 4 sketches by **BRYAN DE GRINEAU.** Price **7/6** net.

The Book has called forth wide-spread comments and the following are some expressions of opinion which have appeared in the Press :—

Under the heading "THE BOOK OF THE DAY," *THE MORNING POST* says: "Sir Henry Birkin writes as he drives, fast and courageously, and this book, more effectively than any other on the subject that has come my way, re-creates the true atmosphere of Motor Car Racing and gives an inspiring picture of the work of the driver. . . . . should be read by everyone who has ever ridden in a Motor Vehicle."

"I have never read a better book on this inspiring subject than "FULL THROTTLE."—*THE YORKSHIRE POST*

"The candour and sincerity of his book and the enthusiasm which shows through his words will do good. The book is well produced and there are many good photographs."—*THE TIMES LITERARY SUPPLEMENT*

"Sir Henry Birkin has written a pæan to the Racing Car and its possibilities in the terms of an Autobiography, which in its lyrical enthusiasm has had no parallel since Henley penned his free verse poem to Speed in the early days of the Car. The book is lavishly illustrated both with photographic reproductions and clever pencil drawings by Bryan de Grineau."—*THE SUNDAY TIMES*

"A beautiful, satisfying, sincere and certainly exciting example of special pleading is "FULL THROTTLE." It is an intensely vivid chronicle of stirring events. The story is splendidly told and there is no doubt that it grips."—*THE TATLER*

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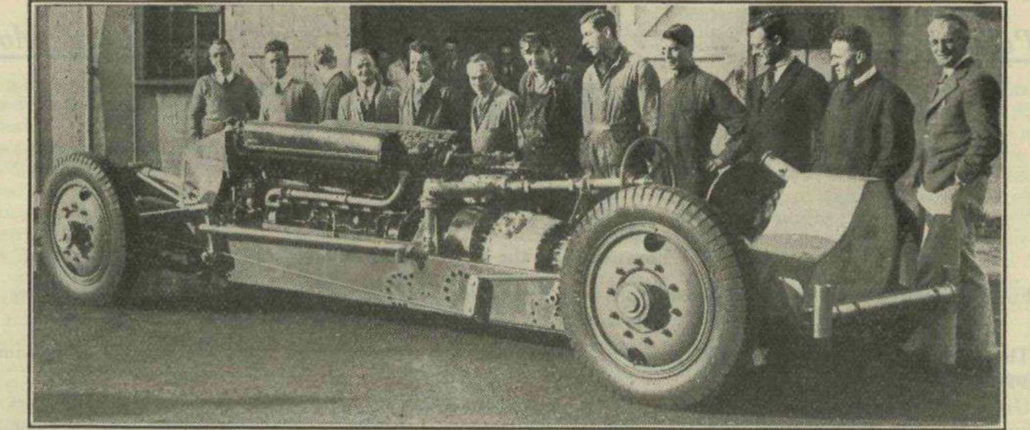


BLUE BIRD IN ITS LATEST FORM

ONCE more Sir Malcolm Campbell is setting out to do battle with the World's Land Speed Record, and with the additional power provided by the new Rolls-Royce engine, which is of the same type as was fitted to the Supermarine seaplanes which won the 1931 Schneider Trophy, he should be able to make a substantial improvement on his present record of 253.9 m.p.h.

The " R " type Rolls-Royce engine, which was developed from the normal H or Buzzard series, is a twelve-cylinder V engine with bore and stroke of 6 and 6.6. inches (152 mm. and 168 mm.) with a total capacity of 36,582 c.c. The blocks are aluminium castings set at 60°, and have integral heads with aluminium bronze valve seats. High carbon-steel liners are used for the bores, and water leakage is prevented at the points where the liners bear on the blocks by an aluminium ring at the top end and a rubber ring at the bottom end. Hiduminium, a light and strong alloy developed by Messrs. Rolls Royce, was used in the racing engines in place of aluminium.

Each cylinder has two inlet and two exhaust valves and each cylinder block has a single overhead camshaft driven from the supercharger end of the engine by shaft and bevel gears. The valve rockers are pivoted at their outer ends and their inner ends bear on the valve stems. They pass under the camshafts, and have " humps " near their inner ends on which the cams operate. This form of construction is used in order to reduce the overall height and so the frontal area of the engine. The camshaft drive is taken from a shaft mounted in line with the crankshaft and flexibly driven from it.

Two plugs per cylinder are used, and the two twelve-terminal magnetos are driven by a cross shaft at the supercharger end of the engine.

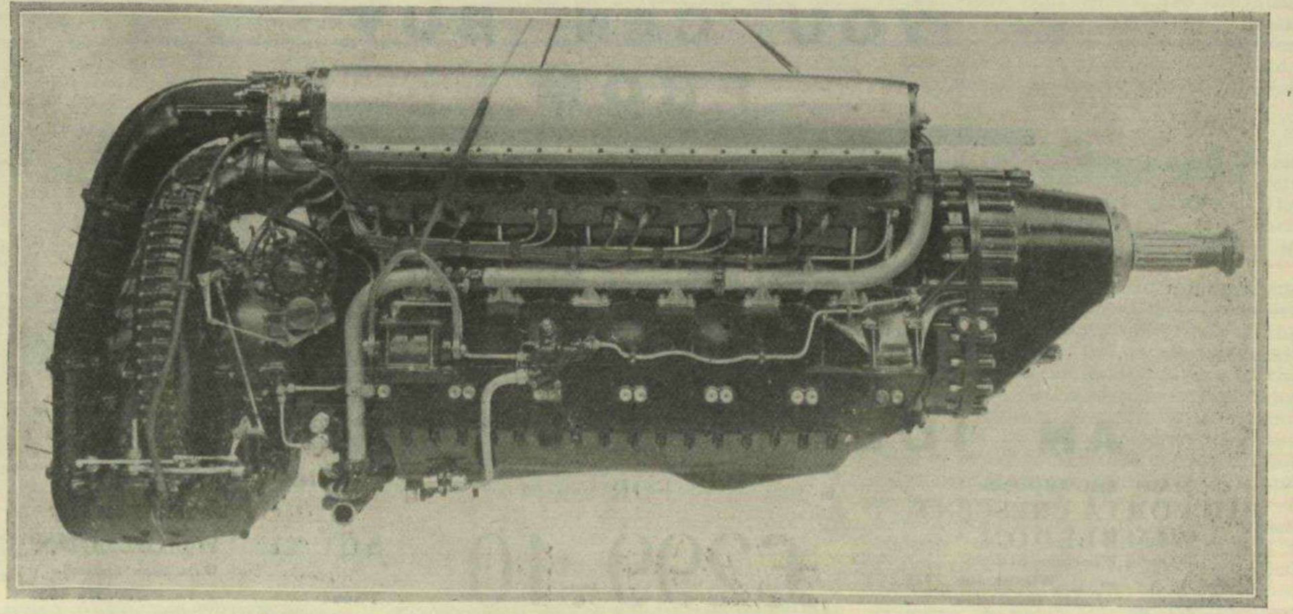
The aluminium pistons have concave heads and very short skirts, their depth being only about half that of their diameter. The hollow gudgeon pins are fixed in the pistons and oil is supplied to the little ends through drilled connecting rods. These are made of steel and those on one side of the engine have forked ends carrying steel blocks, which are lined with white metal and bear on the crankshaft. The blocks are also faced with white metal and the other big-ends of the rods pass through the forks and fit round the blocks.

The crankshaft is of course hollow and lubricated by pressure. It runs in seven main bearings.

The supercharger is of the centrifugal type and air is drawn into it from both sides. It is driven by sun and planet gears from the flexibly driven auxiliary shaft in line with the crankshaft. The gear-ratio is not given, but is probably about 12 to 1, while the diameter of the supercharger is very much bigger than that on the Buzzard.

The two carburettors on the Schneider Trophy engine were at the supercharger end of the engine, at the bottom of the casing and mixture was drawn through them to each side of the rotor. A specially

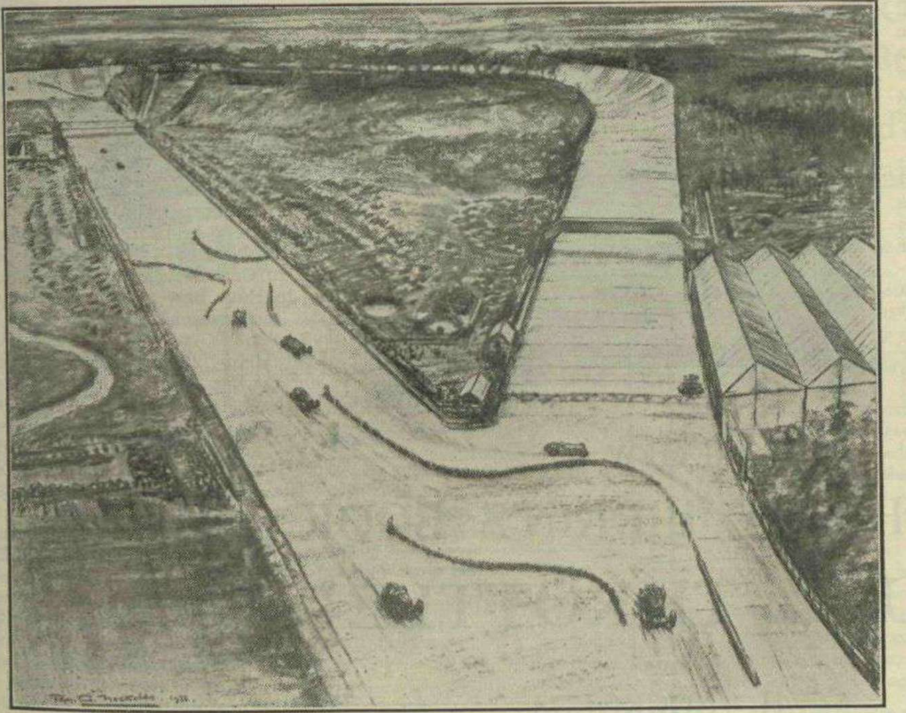
(*Continued on page 107*).



Power ! The " R " type Rolls-Royce aero engine which has been installed in Sir Malcolm Campbell's " Bluebird."

THE J.C.C.'s NEW RACE

ONCE again the Junior Car Club have shown that they can be relied upon to organize a race which is completely revolutionary in character. First the 200 Miles Race, which was a success in spite of dire prophesies, then the Double Twelve ("no car will finish"!) and now the New Race, as yet unnamed.


An imaginative aerial view of Brooklands track with the J.C.C.'s new race in progress. The handicapping system can be clearly seen.

The method of handicapping the various classes in the race can best be seen in the accompanying illustration, all cars having to negotiate an S bend in the Finishing Straight, after which the "babies" go straight ahead for the Byfleet banking, the larger cars having to make turns of varying severity, in accordance with their size, before setting off in pursuit of the others.

The advantages of this method are obvious, but none the less vital for all that. Cars will run level, with no handicap beyond their normal course. The score-board will be easy to read, and will mean what it shows! There will be a massed start (and, we hope, a massed finish). The first car past the post will be the winner, Slide rules may be left at home, and no mathematical calculations whatsoever will be required to be worked out in order to tell who is winning. Finally there will be plenty of corner-work to watch.

Regulations are not out yet, but the event will be for real racing cars, Mr. Dyer, the Secretary, tells me that there was some talk of trying to help the figure 200 in the length of the race, "just for old time's sake," but it is more probable that a time limit of about 6 hours will be used, say from 11 a.m. to 5 p.m.

We wish the race every success. It deserves a lot.

A CORRECTION.

We have received the following letter from a competitor in the Bugatti Owners' Club's Half Day Trial :—

SIR,—In the November issue of MOTOR SPORT, under the heading of "The Bugatti Club in Surrey," I am incorrectly reported as having taken a wrong turning and gone off the course whilst driving a 30-98 Vauxhall Saloon instead of my O.M.

I should like to point out that the driver of the 30-98 Vauxhall Saloon was Mr. D. McNeil, of whose team I was a member, and that I was driving my O.M.

Incidentally, the official results of this trial show that McNeil in his Vauxhall put up the second best performance, his aggregate for the various timed events being only 0.4 seconds below that of the winner of the "Premier Award," K. W. Bear whose trial for the three tests totalled to 40.4 seconds.

Wishing your excellent paper every success.

C. E. MAYO SMITH.

We tender our apologies for having mistaken Mr. Mayo Smith's identity.

BLUEBIRD IN IT'S LATEST FORM (*continued from page 106*).

shaped air intake pipe between the blocks faced forward, and about two pounds additional pressure was produced by the forward motion of the machine. On the Blue Bird the supercharger end of the engine is in front, so the air intake will come from behind the radiator. In the space now made available between the cylinder blocks, six car-type carburettors have been installed.

The engine of the Blue Bird also differs from that shown in the illustration in not having the propellor reduction-gear.

The Schneider Trophy engine was rated to give 2,350 h.p. for one hour, but as each 10 mile run at Daytona only takes about 3 minutes, the output has been brought up to 2,500 h.p. The engine speed is between 3,200 and 3,600 at which speed the centre main bearing is under a strain of about 9 tons.

The extra length of the power unit has made it necessary to lengthen Blue Bird's chassis, and the total length is now 27 feet. The side members have been prolonged to form supports for the radiator, which is no longer separated from the body shell. The cooling air therefore passes into the bonnet and will escape through enormous louvres in the sides. The header tank, which is connected to the radiator by two pipes passing over and under the very deep front chassis cross member, is tapered in front and cut away at the back to clear the supercharger casing.

The steering lay-out, in which independent steering rods, with steadying links near the front, were actuated by separate steering boxes has been retained. The front axle is positioned by a flexible radius rod, and the friction type shock absorbers are now arranged across the chassis.

The clutch has been re-designed to cope with the increased power output and the three speed gear box is offset to bring the propellor shaft in line with the final drive. This of course is also offset, so that Sir Malcolm sits on the right of the car below the level of the shafts.

A Dewandre vacuum-servo cylinder applies the brakes, and the drums are almost hidden inside the disc wheels. Needless to say Dunlop tyres will be used.

The Rolls Royce engine develops 2,500 h.p. against the 1,450 of the Napier formerly fitted. The power required to propel a vehicle increases at the square of the velocity, so with an extra 40% power one may expect about 6% increase in speed or an additional 18-20 m.p.h. The streamlining and other factors have been altered, however, so we will take refuge in the good old tip of "Wait and see."

A REVIEW OF

SIR HENRY BIRKIN'S BOOK "FULL THROTTLE"

BY

H. NOCKOLDS

THE motor-racing book-shelf grows apace. A few years ago Jarrott's "Ten Years of Motors and Motor-racing" was its solitary occupant, but now that classic book has some worthy companions, and the latest volume to take its place in motor-racing literature is Sir Henry Birkin's book "Full Throttle" (Foulis, 7/6d.). Earl Howe has written a Foreword, in which he pays tribute to the fine qualities of the author as a driver and concludes by giving in brief, the reasons why motor-racing should become a national sport.

To many the book will come as a surprise. Their knowledge of Sir Henry will be confined to seeing him hurtling (there is no other word for it) round Brooklands Track in the single-seater Bentley, or driving with polished brilliance at Belfast or Le Mans in Bentleys and Alfa Romeos. To them the thrill of speed and driving skill appears to be his chief concern, and whether he is driving at home or abroad, in an English car or a foreign machine, does not seem to matter so long as he has a good drive.

But they are wrong. Behind all this daring and zestful racing is an intense desire that Britain should take its due place among the great motor-racing nations of the world.

To Sir Henry Birkin "the wearing of the green" as he calls it, or his participation in the Bentley team at Le Mans, Brooklands and Ulster was in the nature of a knight defending the honour of his country. And when the Bentleys were no longer able to run in big races, in spite of the Indian Summer of 1929 when the Hon. Dorothy Paget very sportingly ran a team of four throughout the season, Sir Henry regarded his having to race foreign cars as a period of "exile."

Inevitably, he reiterates that only a road-circuit of our own can give England a chance to compete in motor-racing, and in the chapter "England, my England," which he describes as "the kernel of the book," the case for a road-circuit is put with a seriousness and fervour which cannot fail to move the reader. Here are a few points from a chapter which should be read and re-read by all who have the future of English motoring at heart.

"The acid test of a car is a road-course. Throughout the length and breadth of England there is no road-course."

"A Nation's motor trade derives more impetus and publicity and financial profit from winning such an event than the most elaborate advertising campaign could ever give it."

"It is silly to assume that a road course must spoil the view."

"So it has come to this, that we who pride ourselves on our sportsmanship, who minted the word and laugh at it on foreign lips, have no representation in one of our main departments of sport. Worse, we are the only great European country in this humiliating position."

"The expert has accustomed himself to high speed, and knows by instinct how to deal with a crisis. Only a road-course can make this familiarity universal."

"Foreign money would come pouring into the country if a road-course were built in England; this is not merely my own theory, but an argument that anyone can corroborate."

"Why must we be sea-sick to watch our road-racing?"

"Foreigners would flock to it . . . and international relations would be aided by a voluntary friendship far stronger than political entente. So it has always been on the Continent, and we would be no less eager, once the time came, to welcome our guests and parade the glories of our new circuit; and cars would be built once more to restore our honour."

". . . still our English firms must take their cars abroad if they wish either to test or advertise them in the best way possible."

"Its first meeting would be attended by teams of foreigners who have been longing for such an occasion, and crowds would flock there more certainly than they do to Belfast."

The proposed Ivinghoe circuit, with its great hill, will fulfil the demands of Sir Henry in every respect, and all who hope that England will once more be represented in Grand Prix racing will do everything in their power to further this solution to our present difficulties.

"Full Throttle" reveals a personal aspect of Sir Henry Birkin which will do much to endear him to everyone who has the good fortune to read the book. His courage (when he hacked away the red hot tyre from the brake drum of his Bentley with a pen-knife at Le Mans in 1928). His reticence about the sensations of lapping Brooklands at 137 m.p.h., a sight which never fails to sicken at least one spectator. His candour, "If . . . my younger readers had pictured me as tall and broad and clear-cut, barking out instructions in a voice like a knife, I am heartily sorry; I am quite small and I do stammer." His—but there are so many aspects of the author which are bound to charm the reader. His tribute to the mechanics who do "the dirty work"; to Clive Gallop, who has been in charge of the preparation of his cars; to many drivers, English and foreign; and to "Ebby," the Brooklands handicapper, "any reward must be, and is, hopelessly inadequate."

But one could write a whole issue of MOTOR SPORT in singing the praises of "Full Throttle." Thrills, anecdotes, humour, and first hand information of the magnificent sport that is motor-racing, all are here in plenty, illuminated by a personality which stands for everything that is fine in sportsmanship.

"Full Throttle" is dedicated "to all schoolboys." In turn, they could not have a finer example to follow in courage and daring than Sir Henry Birkin.

THE NEW LAGONDA CAR CLUB.

Following the suggestion of Mr. C. C. Vokes (which appeared in the December issue of *Motor Sport*) that a Lagonda Car Club should be formed, definite steps have now been taken to start the club, and at a recent meeting the following officials were elected: *President*, General F. E. Metcalfe; *Hon. Secretary and Treasurer*, Mr. C. C. Vokes; *Hon. Trials Secretary*, Mr. W. M. Cooper; *Assistant Hon. Secretary*, M. H. Selby; *Committee*, Major W. H. Oates, *in the Chair*, E. d' C. Carr, A. D. Jaffé, P. J. Fields-Richards, C. C. L. Brown.

The annual subscription is £1 : 1 : 0 and a most attractive club badge can be obtained for one guinea.

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Regarding my Frazer Nash which I purchased in 1925, I cannot praise it too highly. It has run about two hundred and ten thousand miles in the last seven years—probably rather an unusual mileage. It has never been spared and, although we cannot make very high speeds on these roads, it has always been driven a good deal faster than other cars in this country, and can still beat any of the big Americans in this part of the world—it has already outworn about five of the average cars that run here.

The engine is almost as good as ever—could do with new valve springs. One shim has been taken out of the big-end bearings and a new timing chain fitted. This is all that has been done to the engine in 200,000 miles except for an occasional valve grind. It has not been decarbonised sinee "heaven knows when," but 70 m.p.h. is all right—and I am sure I could still get 75 to 80 with a spot of tuning—she will cruise at 60 all day.

The first and reverse gear chains are those originally fitted, which, incidentally, considerably beats what you quote in your catalogue. (*We are always conservative in our claims ! A.F.N. Ltd.*)

The car has to run in all kinds of weather and over very bad roads (merely a series of pot-holes) all the time—pretty bad going as you can imagine. Even under the motoring conditions existing in this country, which are far from ideal for a sports car, my Frazer Nash has been in every way entirely satisfactory. The poor thing never gets any attention, but plenty of banging about, which it seems to stand up to very well.

If you would like to use any portion of this letter as a reference, you may do so willingly as a tribute from a very enthusiastic owner."

—being extracts from a recent letter to us from Mr. Stuart-McLeod of Cobble Hill, British Columbia.

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with the way your car skates on grease ; if it isn't capable of putting up the averages you were led to believe, or has a disappointing cruising speed (N.B. 60 m.p.h. at 2,500 r.p.m. is the cruising speed of the Frazer Nash—maximum engine revs. 5,000 r.p.m.) ; if it requires constant tuning to hold its performance ; if in any way you cannot get everything you, as an enthusiast, wish to have, or if you now want the safest and best all-round sports car in production—why not get into touch with us ? We are entirely at your service. Prices from £395 0 0, fully equipped.

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CONTINENTAL NOTES.

RECORD ATTEMPT ENDS IN DISASTER.

The Italian Driver, Ruggeri, killed at Montlhéry on the 16-cyl. Maserati.

For some time it has been known that an attempt on records at Montlhéry was to be made by the 4 litre 16 cylinder Maserati. On December 6th, the *équipe* arrived at the French track, the two drivers, Luigi Fagioli and Amedeo Ruggeri, and the head of the Italian firm, Ernesto Maserati.

Practicing was immediately begun, and many laps were covered by both drivers at high speeds, sometimes nearly 140 m.p.h. being recorded. The intention was to go out for the World's Hour Record now held by G. E. T. Eyston on the "Razor-blade" Panhard et Levassor at 130.73 m.p.h., and all world's records between 50 kilometres and 500 miles.

But the attempt was doomed to end in disaster. On Wednesday, December 7th, at about 12.15 p.m., the Maserati got out of control while in the hands of Ruggeri, turned over five times, demolished some fencing, and finished up more than a hundred yards from where it first rolled over. The unfortunate driver was thrown for a distance of 30 yards when the car made its first leap, and struck the concrete track with great violence. One of the first to reach poor Ruggeri, who was terribly injured, was the French driver, Albert Divo, and he immediately set about organising assistance for the Italian. In spite of a doctor being on the spot instantly and rendering first aid, Amedeo Ruggeri had passed away before the ambulance arrived at the hospital, without regaining consciousness.

The accident happened on the west banking of the track, and the car came to rest just beyond the end of the pits. The cause of the disaster will probably never be discovered, but it has been suggested that Ruggeri was holding the Maserati rather low on the banking for the high speed at which he was travelling.

Like many Italian drivers, Ruggeri began his career on motor cycles. In 1921 he first appeared on a Harley-Davidson, but later forsook this for a 1,000 c.c. Indian, a machine with which he several times won the class championship of Italy.

Ruggeri has been buried in his native town, Bologna, and all European racing enthusiasts will condole with the Italian nation and the firm of Maserati on the loss of a very fine driver.

Wimille Returns to Bugatti.

In 1931 Jean Pierre Wimille made a brilliant *début* with a Bugatti. In the past season, however, he has piloted a 2.3 litre two-seater Alfa Romeo in many events. Now, for 1933, the young Frenchman is returning to the Bugatti fold, and has come to an agreement with the veteran driver Friedrich to race one of the Molsheim products next year. Friedrich is the Bugatti agent in Nice, and specialises in the maintenance of Bugattis for racing work, among his clients being the popular Count Czaykowski, who competed in the 500 Miles Race at Brooklands.

Etancelin's Plans.

One of the best known of French "independents" is Phillipe Etancelin, who has competed regularly for several years now in most of the big Continental races. At one time he drove a Bugatti, but all last year his mount was a 2.3 litre Alfa Romeo with a two-seater racing body. For 1933 Etancelin will continue to drive an Italian car, and he is taking delivery of a new Alfa Romeo in the New Year. His first appearance will be in the Grand Prix of Pau, on February 19th, the race in which he had a great tussle with Sir Henry Birkin in 1929. Incidentally a first hand description of this race appears in Sir Henry's book, "Full Throttle."

A Newcomer for Le Mans.

An entry has been received by the A. C. de l'Ouest of an 1,800 c.c. car from the Société des Automobiles Charley. The car will be driven by René Charley.

Raymond Sommer (Maserati).

During the 1932 racing season a new star appeared in the French motor-racing firmament, to wit, Raymond Sommer. With a specially streamlined Alfa Romeo, he took part in all the big races in France, and showed himself to be a driver of rare quality, combining to a nice degree considerable *verve* with cool judgment. This brilliance had its due reward, for Sommer won both the Le Mans 24 Hours Race and the Marseille Grand Prix—a good bag for a first year's racing!

For 1933 Sommer has already made his plans. To begin with, he has bought two of the new 3 litre "monoposto" Maseratis, which will be entered for all important races next year, with himself and Zehender as drivers. Then he has taken up the Maserati agency for France, and has hopes of the 1,100 c.c. and 1,500 c.c. models giving a good account of themselves in the small classes of road events. He will take delivery of his own Maserati towards the end of January, and has entered for the Grand Prix of Pau on February 19th.

Incidentally, the new single seater Maserati looks a most promising job. The engine is set farther back in the frame than usual, so that the front axle comes well forward of the radiator, à la Frazer Nash. This, in conjunction with a short tail, gives the car a very fleet appearance, and it will be interesting to see how the Maserati fares against the so far all-conquering single seater Alfa Romeo.

The Grand Prix of Pau.

The season is opening early on the Continent for 1933, the first race of importance being the Grand Prix of Pau on February 19th. The race marks the culmination of a week's motoring sport.

ROADS

SOME POINTS AFFECTING THE SPORTING MOTORIST

By

E. WINGROVE KEER,

A.M.I.C.E.

TO those engaged in the construction of roads, it is a matter of no small wonder that so little attention has been given to this subject in our motoring journals. Without the rapid improvements in highways, carried out during the past dozen years or so, it would have been impossible for the tremendous growth in motoring as a whole, and in sporting motoring in particular, to have taken place.

In the case of a railway, that part of the system which is of the greatest importance, and which receives the greatest amount of attention, is the "permanent way." The type of train, the speed at which journeys can be accomplished, and the comfort in travelling are all dependent on the design of the "permanent way." The motorist's "permanent way" is the road, and his ability to perform fast, safe journeys upon it is the result of careful research on the part of those responsible for the design and construction.

Recent Improvements.

Most of us remember the dreadful state in which our roads were left after four years of neglect during the War. Broken springs were the rule of the day, clouds of dust followed each car, and a journey of any duration was in most cases a matter of discomfort. The position was aggravated by the fact that the motor industry had turned its attention to the production of cars on an unprecedented scale, and it was obvious that drastic methods would have to be resorted to, in order not only to make the roads fit for the use of the then existing traffic, but for an enormously increased volume of road users and for loads and speeds hitherto unthought of. In order to meet this urgent necessity, the Ministry of Transport formulated a comprehensive programme of road construction and improvement throughout the whole country. Most of the money needed for these schemes was raised by means of a newly imposed tax on motor vehicles. At the same time the problem of unemployment occupied a prominent position in the affairs of the day, and it was planned partly to counter this by drafting the unemployed on to large road construction works. This particular class of work was known as "Relief Work." The projects were planned, let out to contract, and supervised by the Ministry of Transport or local government bodies.

Many of our new arterial roads were commenced during this period; some were successful, others were partial failures due to lack of experience, or through provision for the rapidly increasing weights to be borne by the road not having been made, but mostly they were successful. Examples of these earlier arterial roads are the new Southend Road, the Dartford By-pass and Watling Street, the Great West Road, the Croydon By-pass, the Barnet and Watford By-passes, the Birmingham-Coventry Road, and many others.

Important and necessary as these fine new roads are, it is mainly the numerous small improvements in all the main roads and subsidiary roads, carried out during the last ten years or so, that have been responsible for providing motorists with the excellent means for rapid transit that they now enjoy. It is to be hoped that the fervour for economy, about which we now hear so much, will not result in another period of such neglect as to cause damage to our highways that would be irreparable without colossal expenditure. Like machines, roads need maintaining, and without this necessary maintenance, although for a time they may carry out their duties, it means a heavier repair bill in the end; and from the motorist's point of view this preiod of neglect would be deprecated through reason of the declining efficiency of their medium of travel.

There are many and varied points to be taken into consideration by the engineer when he is planning the construction of a new road, or the improvement of an old one. The latter proposition is usually the more difficult, for then he often has problems to deal with involving an alteration to, or even in some cases the demolition of, buildings adjacent to the highway. These are the cause of considerable complications, and, in fact, sometimes determine the alignment of the reconstructed roadway. That part of the road with which the motorist is principally concerned is the actual surface of the carriageway, but this happens to be the last point of consideration of the road builder. The re-surfacing of a road is a simple matter compared with an alteration, however small, to the actual limits of the highway as a whole. For instance, the easing of a dangerous bend might involve the preparation of quite a number of plans, and a not inconsiderable amount of litigation before the work can proceed. As often as not, a house or some other building is situated near the scene of operations and will be affected by the contemplated improvement.

Planning a new road.

When an entirely new road is to be constructed, a tentative location is first drawn out on the Ordnance Survey sheets; this is then checked by a preliminary surveying on the site, and a definite position finally arrived at. A more exact survey is then carried out, and on large scale plans prepared from this the new road is plotted and every detail of the construction schemed out. These plans become the working drawings from which the road is actually built. Where the new highway passes over undulating ground, as is usually the case, it is necessary that the gradients are not excessive, and in order to effect this, cuttings and embankments are formed. As far as possible, the engineer arranges these so that the amount of excavation will be equal to the amount of embankments, otherwise should

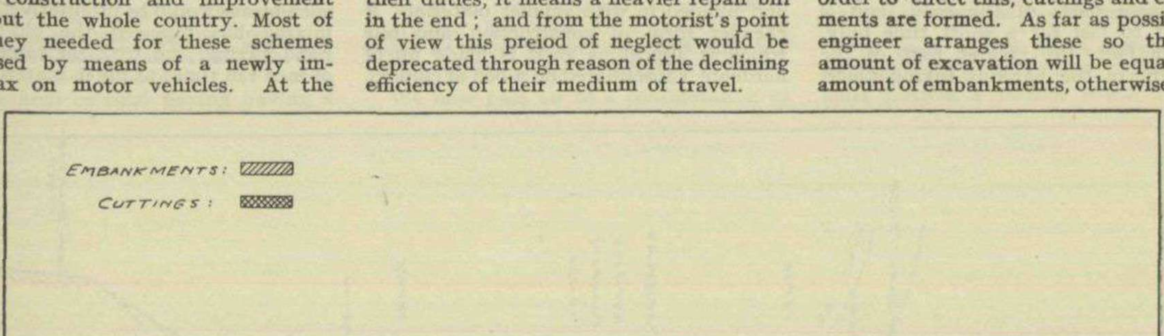


DIAGRAM I.—Cuttings and embankments on a new road.

ROADS—continued.

his embankments be in excess, it will be necessary to excavate, unnecessarily, material to make up this excess. On the other hand, if there were more cuttings, then some means of disposal of the material not required for embankments would have to be found. This is termed a spoil bank and is avoided as much as possible, because it often means hauling the material some considerable distance. Diagram 1 illustrates how the balance of cuttings and embankments is arrived at. In hilly country the earthworks, as the excavation and filling is termed, is a serious item of expenditure in the construction, and great care is taken to ensure its being a minimum. Nowadays, mechanical excavators are used extensively, and thereby costs have been reduced considerably. These are now mostly driven by oil engines in place of steam, and are mounted on caterpillars, by the use of which the machine is considerably more mobile and the necessity for an expensive railway track obviated.

Embankments.

A mechanical excavator will scoop out a ton of earth and load it into small tip-waggons. These tip-waggons, in sets of about a dozen, are hauled by steam or petrol locomotives to the site of an embankment, where their contents are tipped until the ground is raised to the desired level. In practice the embankment is made up to a higher level than will be eventually required; this extra height allows for the subsidence which naturally takes place. This settling of an embankment is one of the most difficult problems with which the road engineer has to contend. During the first year the ground rapidly sinks; thereafter the process continues, but to a lessening degree, for several years. For this reason if possible, embankments are left to stand for about a year before the actual roadway is formed upon them, and even then the general policy is to lay what is termed a temporary surfacing. This is probably of a more flexible nature than that on the other more stable parts of the road, and is intended to last for a short time only, while, in fact, the greater part of the settlement of the bank is taking place. When the tipped material has become sufficiently consolidated, permanent foundations and surfacing are constructed. Readers will probably have noticed work of this nature being carried out on roads with which they have been familiar for a number of years.

Temporary Surfacing.

Whilst the temporary surfacing is carrying traffic, the negotiation of that part of the road is generally a somewhat uncomfortable one for motorists, and there are often complaints regarding the irregularities of the carriageway, but, as will be readily appreciated by the foregoing remarks, this period of transition from an unstable to a stable condition cannot be avoided. A usual type of temporary carriageway takes the form of a foundation consisting of hardcore (i.e. broken bricks, broken lumps of old concrete, stone, slag, etc.) and a surfacing of tarmacadam. A foundation and surface so constructed are of such a nature as to stand a good deal of flexing without an actual break-up of the carriageway. Were we to adopt concrete or some other equally rigid form of construction, it is obvious that any settlement of the ground beneath would cause a complete fracture, which would result eventually in a complete collapse of the material.

Road Foundations.

That part of the roadway which in cuttings lies between the toe of the slopes, or on embankments between the top of the slopes, is referred to as the formation. The formation width generally adopted for a modern road is 60ft., and is made up of a 30ft. carriageway divided from two footpaths on either side by grass verges. Diagram 2 illustrates a typical road formation. Various methods are adopted for the construction of the foundation to the carriageway, and to some extent will depend upon the surface to be used. The pitched foundation consists of large pieces of stone set edge-ways upon a layer of ashes, the whole being eventually rolled and blinded in with smaller material. A cheaper form of construction and one which is almost as good is made up of hardcore, consolidated on a bed of cinders. Nowadays, however, the trend is towards the reinforced concrete foundation, which has the great advantage of being able to span localised soft places in the ground and provide a rigid base upon which to lay the actual road surface, unless it is decided, as is often the case, to utilise the concrete itself as the road surface.

Concrete, like all other materials, expands with heat, and, as on a railway gaps are left between each length of rail to allow for expansion, so in the concrete road allowance for movement, under the influence of heat, must be made. This is arranged for at regular intervals by a joint about ¾ inch in thickness, which runs across the full width of the road, and which is filled with a bituminous substance easily compressed. Without such an arrangement, in very hot weather the concrete would rise up and crack in various spots. The thickness of a concrete foundation varies; where it is intended to lay upon it a surfacing material, 6 inches is usually adopted, but if the concrete is to act as a wearing surface 8 inches or more is laid; for in this case the cushioning effect of a surfacing medium will be absent.

Concrete Roads.

The majority of concrete roads are reinforced with some form of steel mesh which serves several purposes. It binds the whole together in a homogeneous mass, assists the concrete in bridging soft places in the subsoil, and prevents irregular cracking due to climatic changes. This reinforcement usually takes the form of a number of steel bars about a quarter of an inch in diameter, welded together to form a kind of mat, and is supplied in rolls, but there are many other varieties, although they serve the same purpose. Years ago concrete, which consists of stone, sand and cement mixed with water, was made by hand, the ingredients being dumped on a board and turned over with shovels. Needless to say this method of manufacture is of necessity slow, and the cost of constructing a concrete road by such means would be prohibitive. Machine mixing has replaced the old-fashioned hand-mixing, and with the same number of men ten times as much material can be

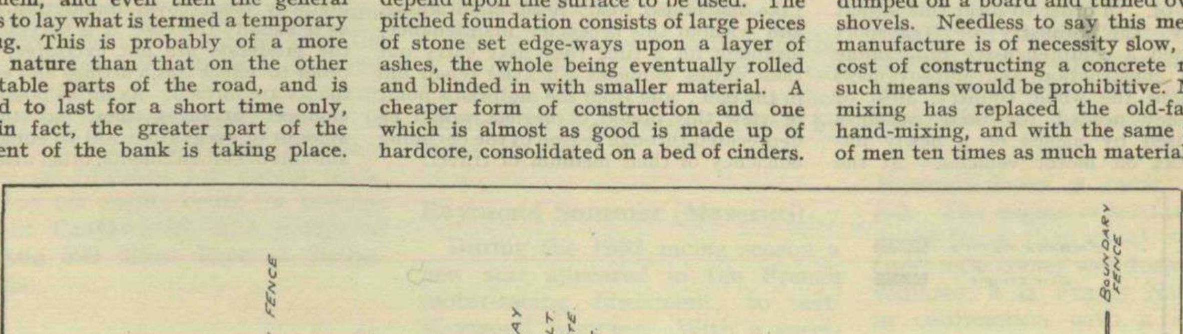


DIAGRAM II.—The formation of a typical new road.

ROADS—continued.

laid. The ingredients, in the correct proportions, are tipped dry into a hopper behind the machine which is elevated by power till its contents are emptied into a revolving drum. Water is added, and after a space of one minute the mixture is delivered from the drum ready for laying, the whole process taking but a few minutes. An important point which the road builder must watch in laying a concrete road is the finishing of the surface. Great care has to be taken to see that no undulations occur, and in order to effect this before the concrete is placed, rigid edgings of timber or steel known as screeds are set up, so that their top edges are exactly coincident with the finished surface of the road. The concrete is laid and brought to the correct level by what is known as tamping. This is done by means of a plank on edge, which is worked along the top edge of the screed, and at the same time bumped up and down. The plank is iron shod on the working edge and is provided with handles at either end, by means of which it is lifted. In the United States mechanical tampers are in use, but in this country they have not become general practice.

Concrete as a surfacing medium has the great advantage that it is never slippery in any kind of weather. Most other road surfaces need periodical treatment to render them non-skid. Some motorists have complained that concrete results in heavy tyre wear, but it is apparent that one cannot have it both ways; if a non-skid surface is required this means tyre grip, and tyre grip obviously results in tyre wear. From the point of view of speed, which to us racing enthusiasts is a matter of principal concern, the material which causes the least amount of friction, and upon which a car is most lively, is asphalt.

Asphalt, Tarmacadam, etc.

Amongst the general public there is a good deal of confusion as to the difference between asphalt, bituminous macadam, and tarmacadam. The term asphalt, strictly speaking, describes the material found in the natural asphalt deposits of Switzerland, Trinidad and elsewhere, but of late it has been used to describe practically any kind of road paving having a matrix, or binding agent of natural asphalt or bitumen. Bitumen is extensively manufactured from the residue of crude oil after the distillation of the lighter oils has been effected.

Rock asphalt, with which many miles of London streets are paved, consists of limestone naturally impregnated with bitumen and is mined from deposits found principally in Switzerland. It is crushed into a powder and heated before being laid. The powder is spread and consolidated by punning, which has the effect of forming it into a rocklike substance again. This form of paving is used generally on streets carrying very heavy traffic. A similar form of asphalt is known as mastic and is manufactured by "*cooking*" *limestone and bitumen till* the former is thoroughly impregnated. The mixture is spread in liquid form and brought to an even surface by hand with floats.

The most usual form of asphalt nowadays, however, is what is known as steam rolled asphalt. This is manufactured by heating and drying aggregate consisting of stone and sand to which is added hot liquid bitumen, the whole being thoroughly mixed together in a special machine. The mixture is then transported to the road, spread by raking, and finally rolled by steam roller, the whole process taking place whilst the material is still hot. When cold, a hard impregnable surface is the result. There are numerous other types of asphalt which are variations of the above, but broadly speaking the three classes described may be taken to encompass asphalt pavings. Owing to their tough, compact nature surfacing mediums of this kind are popular with both sporting motorist and road engineer. They appeal to the former because of their smooth, fast finish representing the minimum of friction between tyre and road, and they find favour in the eyes of those responsible for the upkeep of our highways, by reason of their long life. It is usual to require layers of asphalt to guarantee their work for a period of five years or even longer, and this they are willing to do without hesitation.

We now pass on to a consideration of another class of road surfacing, viz., tarmacadam. This has for many years constituted the most popular method of paving our roads, and has given eminently satisfactory results. It consists of broken stone, slag, flints or other hard material coated with tar. In the process of manufacture, which is usually carried out at the site where the aggregate is found, the stone is thoroughly dried by passing it through a heated revolving drum, and then mixed with the correct proportion of tar which has been previously reduced to a thin consistency by heating in boilers. Unlike asphalt the mixture is laid cold, and therefore possesses the advantage of being able to be stored for an indefinite period before being laid. During laying operations the material is delivered to the road where it is spread with forks to the required thickness, and consolidated by means of a steam roller. Due to the fact that the binding agent is tar, which always remains in a liquid though viscuous state, tarmacadam is of a comparatively flexible nature, and can in consequence be laid on more or less inferior foundations without serious trouble developing; but this flexibility is often the cause of complications in hot weather. It becomes semi-plastic with a liability to be pushed into corrugations and deformations by the traffic, and these will set firm and be perpetuated when cooler climatic conditions follow. This deficiency has been overcome to a large extent by adding a small percentage of bitumen to the tar during the process of manufacture, and most tarmacadam laid nowadays is so treated. When laid on main roads tarmacadam is usually dressed every year with a tar or bituminous compound. This is heated till it assumes a thin liquid form, and is sprayed on to the road surface from a special machine. Chippings are then spread and rolled in. Asphalt is sometimes treated in this way too, but the latest practice adopted for rendering the latter entirely skid-proof is by rolling chippings, which have been previously coated with bitumen, into the surface whilst the material is still warm.

The road pavior has a very difficult problem with which to deal. His material must possess a surface when laid that

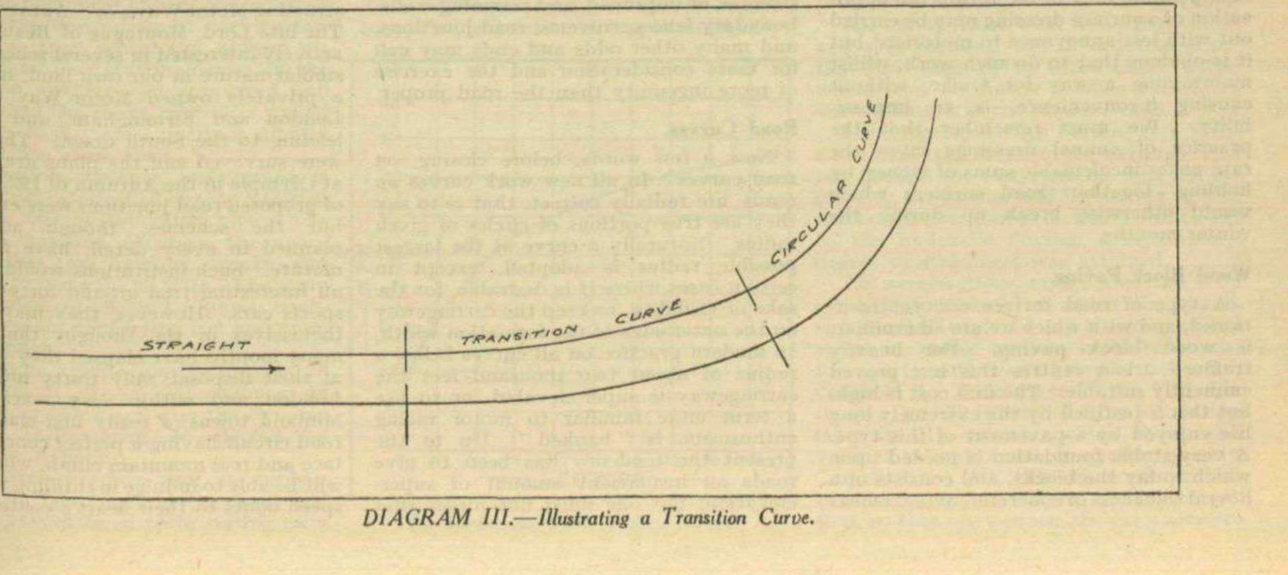


DIAGRAM III.—Illustrating a Transition Curve.

ROADS—continued.

provides a sufficient amount of tyre grip to ensure its being non-skid ; at the same time the surface must be entirely impervious to moisture, and be devoid of crevices or holes in which water could reside, where, in the winter months, it would freeze and crack up the paving material. To satisfy both these conditions at the same time it is no easy matter. However, the enormous improvement in our highways during the past few years testifies to the fact that the difficulty has been largely countered by the ingenuity of the road pavior.

Surface Dressing of Carriageways.

From the experience gained in the use of tarmacadam and asphalt, a host of other surfacing materials has been evolved. Generally these take the form of something between the two and aim at securing some of the advantages of pukka asphalt at less cost. A recent innovation is cold laid asphalt, but this is still more or less in the experimental stages, and up to the present has not given such universally satisfactory results as the older established processes. In this case the matrix is formed of bitumen which has been rendered temporarily liquid by an emulsification, or by the addition of a fluxing agent. In either case the principle is the same and relies upon the evaporation of the lighter ingredient after the material is laid, leaving behind the more solid bitumen as the binding agent.

The seasonal surface dressing of roads is now general practice, and many thousands of miles are so treated every year. Most of the second-class roads consist of old water-bound macadam, which after many years of dressing is almost equal to tarmacadam. To ensure that the work of surface dressing is effective it is necessary to carry it out when the roads are perfectly dry. For this reason it is done mostly in the spring or early summer. Many motorists are justifiably annoyed at what they call " the tarring " of the roads, and every year vigorous protests are raised against it. As a matter of fact, the evil is largely exaggerated in most cases, for nowadays the tendency is to use quick drying bituminous compounds over which a liberal coating of chippings is rolled in. It is possible that in the future the application of a surface dressing may be carried out with less annoyance to motorists, but it is obvious that to do such work, whilst maintaining a way for traffic, without causing inconvenience, is an impossibility. We must remember that the practice of annual dressings saves the rate payer incalculable sums of money by holding together road surfaces which would otherwise break up during the winter months.

Wood Block Paving.

A type of road surface not yet mentioned, and with which we are all familiar, is wood block paving. For heavily trafficed urban centres this has proved eminently suitable. The first cost is high, but this is justified by the extremely long life enjoyed by a pavement of this type. A very stable foundation is needed upon which to lay the blocks, and consists of a liberal thickness of concrete. Wood blocks possess the advantage of quietness and freedom from the possibility of development of corrugations, a feature not enjoyed by either asphalt or tarmacadam. Considerable trouble used to be experienced by reason of the liability of the blocks to swell and heave up in patches after heavy rain. This inconvenient characteristic has, however, of late been overcome by an ingenious device which provides a space for expansion between each block, and yet at the same time holds them firmly in position.

Drainage.

The drainage of the carriageway is an important item, and the success of a road is often dependent on whether or not this has been given the careful consideration due to it. If water is allowed to stand in places a disintegration of the surface will often follow, and from the road users' point af view nothing is more unpleasant than when a deluge of water follows every car, sending showers of spray on to the wind-screen of the motorist behind and over pedestrians on the side-walks. On most of our roads, surface water is dealt with by cutting troughs, or grips as they are termed, through the grass verge and leading water into ditches running alongside the hedges. These act principally as soakaways, but any excess water is fed into streams, rivers, etc. Occasionally there are no ditches, and the water is led through the highway boundary on to the adjacent land, where it soaks away. Whenever roads are reconstructed, these old fashioned and often inadequate methods are replaced by a proper system of drainage. Gullies are placed at regular intervals and at all low spots, and into these the water flowing along the channels of the carriageway is led through the familiar gratings. The gullies empty into a drain running along the roadside under the grass verge, and this in its turn is led to a stream or other convenient spot for disposing of the water. In some cases underground soakaway pits are constructed.

A host of incidental works confront the road builder, besides those items we have briefly surveyed. Several bridges may be required on the stretch of road to be constructed or improved, and retaining-walls, boundary fences, culverts, road junctions, and many other odds and ends may call for more consideration and the exercise of more ingenuity than the road proper.

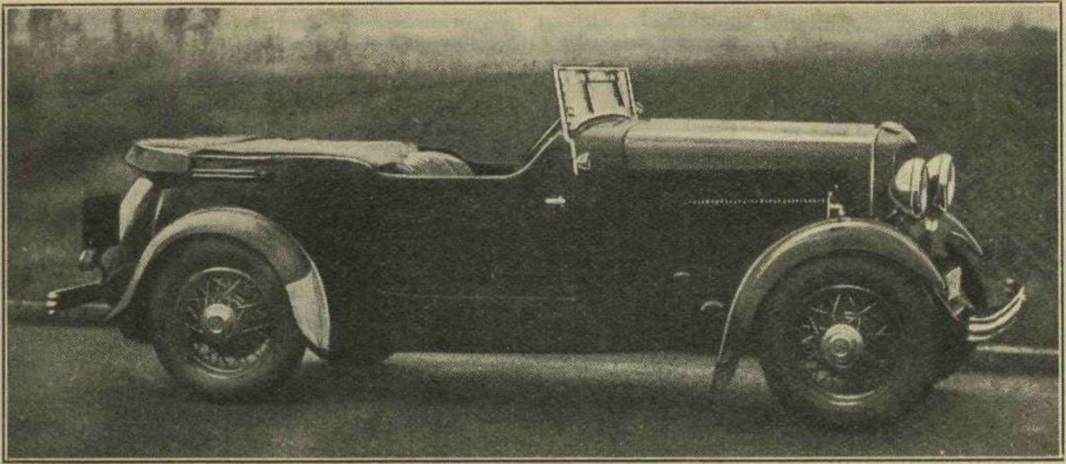
Road Curves.

Now a few words, before closing, on road curves. In all new work curves on roads are radially correct, that is to say they are true portions of circles of given radius. Naturally a curve of the largest possible radius is adopted, except in certain cases where it is desirable, for the sake of visibility, to keep the carriageway on the outer edge of the formation width. In modern practice on all curves below a radius of about two thousand feet the carriageway is super-elevated, or to use a term more familiar to motor racing enthusiasts, is " banked." Up to the present the tendency has been to give roads an insufficient amount of super-elevation, but one must not forget that until two years ago the maximum legal speed for cars was 20 m.p.h., and authorities did not consider that they were entitled to cater for speeds of 40 or 50 m.p.h. There is no doubt that the future tendency will be towards more super-elevation at curves. The super-elevation of bends is a very important contributory factor to the elimination of accidents, for the following reasons : (1) it counters the tendency of the car, through centrifugal force, to skid across the surface ; (2) by reason of the fact that it is just as easy to negotiate super-elevated bends on the outside as on the inside, the tendency to cut corners by motorists will, when they realise the truth of this, be less prevalent ; and (3) the super-elevation of the road actually turns the wheels of the car in the right direction.

Some people have suggested that transition curves should be adopted in laying out roads. A transition curve, as the name suggests, is a method of gradually leading up to a curve of given radius instead of at once swinging away from the straight. Diagram 3 illustrates this. The writer does not agree with this suggestion. Those who drive sporting cars will be familiar with that unpleasant type of bend which, when they first turn into it, appears to be comfortably negotiable at forty miles an hour, and then unexpectedly sharpens up to something demanding a much slower speed. This necessitates sudden braking whilst turning, which everybody will agree is an undesirable feature. On these occasions the motorist has encountered what is in effect a transition curve. As a matter of fact the safest kind of bend would be one which is the reverse of a transition curve, where the radius after the first few yards would be constantly increasing. Were all our roads one-way routes this would be possible, but obviously could not be arranged for two-way traffic.

Motor Ways and a New Racing Road Circuit.

In conclusion one cannot refrain from expressing the hope that one day this country will follow the example set by several of the continental countries in constructing Motor Ways, or " Auto Stradas." The late Lord Montague of Beaulieu was actively interested in several schemes of a similar nature in our own land, including a privately owned Motor Way between London and Birmingham, and another leading to the South Coast. The foutes were surveyed and the plans drawn, and at Olympia in the Autumn of 1923 models of proposed road junctions were exhibited, but the schemes, though admirably planned in every detail, have failed to mature. Such institutions would provide an interesting trial ground for owners of sports cars. However, they may console themselves in the thought that before many months have elapsed they will have at their disposal, only thirty miles from London and within easy reach of all Midland towns, a really first-class motor road circuit having a perfect concrete surface and real mountain climb, where they will be able to indulge in thrilling tests and speed bouts to their heart's content.



THE "GREYHOUND" V8 FORD.

A CAR WITH A HIGH PERFORMANCE AT A MODERATE PRICE.

TAKE a powerful and smooth-running V8 engine developing 65 h.p. and put it in a light chassis. The result is acceleration, the most desirable quality in a sports car. The acceleration figures of the V8 Ford are comparable with those of cars costing double the price, and are put up in an effortless manner which should preserve the chassis from premature wear and tear. The petrol consumption is about 15 m.p.g., and the £30 tax is offset by an insurance premium of £15.

The eight-cylinder engine has its two four-cylinder blocks mounted at 90°, and the bores are offset so that two connecting rods operate on each crankshaft throw. The throws are arranged at 90° to one another and the two big-ends operate alongside one another on a floating steel bush faced with white-metal inside and out. The crankshaft runs in three plain bearings. Aluminium pistons are used.

The side-by-side valves are operated by a single camshaft which is carried above the crankcase between the two blocks. The distributor is driven from the front end and the petrol pump at the rear. Fuel is drawn from an eleven gallon tank at the rear of the chassis and supplied to the large down-draught carburettor. This has a large mushroom shaped air filter, and an easy starting device in the form of an auxiliary jet supplying rich mixture when the choke control is pulled out on the dash. The throttle is slightly opened at the same time.

The ignition advance and retard is automatically controlled by a vacuum diaphragm on the induction pipe. The induction manifold occupies the space between the two cylinder blocks and through it projects the oil filter. The sump holds a gallon of oil, and a pump circulates it to main connecting rod and camshaft bearings.

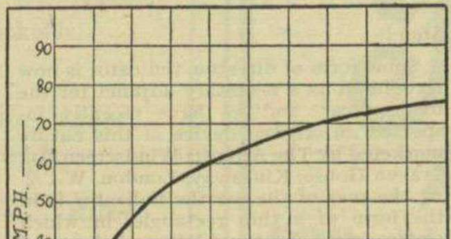
A belt from a pulley on the fore end of the crankshaft drives water-pumps on each cylinder-block and also the dynamo and fan. Adjustment is effected by moving the dynamo.

The engine-gear-box unit is rubber-mounted on two cones at the front end and on a rubber-faced plate resting on a cross-member at the rear. When the accelerator is depressed, the whole engine rocks an inch or more, and also the gear-lever and brake-lever. Petrol and other pipes are therefore flexible. When the car is on the road, the power-unit does not move perceptibly, but the flexible mounting damps out any vibration which may occur.

Brief Specification.

Engine : 8 *cylinders* 77.79 *mm.* x 95.25 (3,622 *c.c.*). *R.A.C. Rating.* 30.01 *h.p. Side by side valves. Ford down-draught. Coil ignition.*
Gearbox : Three speed. Unit construction. Ratios 4.111, 6.6, 11.59 *to* 1. *Central change.*
Back Axle : Spiral bevel. Brakes : Four wheel, rod operated.
Suspension : Transverse.
Wheelbase : 8*ft.* 10*in.*
Track : 4*ft.* 8*in.*
Ground Clearance : 9*in.*
Price : £325.

A single-plate clutch transmits the drive to a three-speed gearbox and second gear is a silent ratio, driving through helical gears, and is also provided with the synchro-mesh mechanism. An open propellor shaft is used, with spiral bevel final drive.



The acceleration chart of the V8 Ford.

The chassis frame is dropped fore and aft, and the transverse springs, for so long a feature of Ford cars, have been retained. The axles are located by radius rods. The four-wheel brakes are operated by rods and the hand lever applies the rear brakes only.

The "Greyhound" open body, which is marketed jointly by Arthur Gould Ltd. of Upper Regent Street, W.1. and W. Arthur Perry of North Finchley, provides comfortable accommodation for four people. The front seats have pneumatic upholstery and can be moved backwards or forwards on slacking off wing-nuts. The driving position brings all the controls under the driver's reach but for a long-legged and tall driver the steering column might with advantage be two or three inches longer. This should not be difficult to arrange. The Ashby steering wheel provides a comfortable grip. The rear seats are well padded and have good leg-room even when the front seats have been moved back, and the high body sides protect the passengers from wind and cold.

The car is fitted with well-fitting hood and side curtains, but in order to allow the front ones to be fitted close to the windscreen on future models the doors will be hinged at the forward ends.

The suspension with normal tyre pressures and shock absorber settings was too flexible for fast running, but by increasing the former and tightening up the Andre friction dampers, fitted additional to the hydraulic devices, a satisfactory degree of steadiness was attained.

The acceleration graph shows the very good performance of which the car is capable, and up to 40 m.p.h. a very useful speed in traffic and on crowded roads, few sports cars, even at double the price, can hold it. Even up to 70 the V8 holds its own, and 60 is reached from a standing start in 21½ seconds, which shows the value of a light chassis in getting quickly "unstuck." All this is accomplished in almost complete silence, without vibration, so that one can use the car's acceler-

THE "GREYHOUND" V8 FORD—continued.

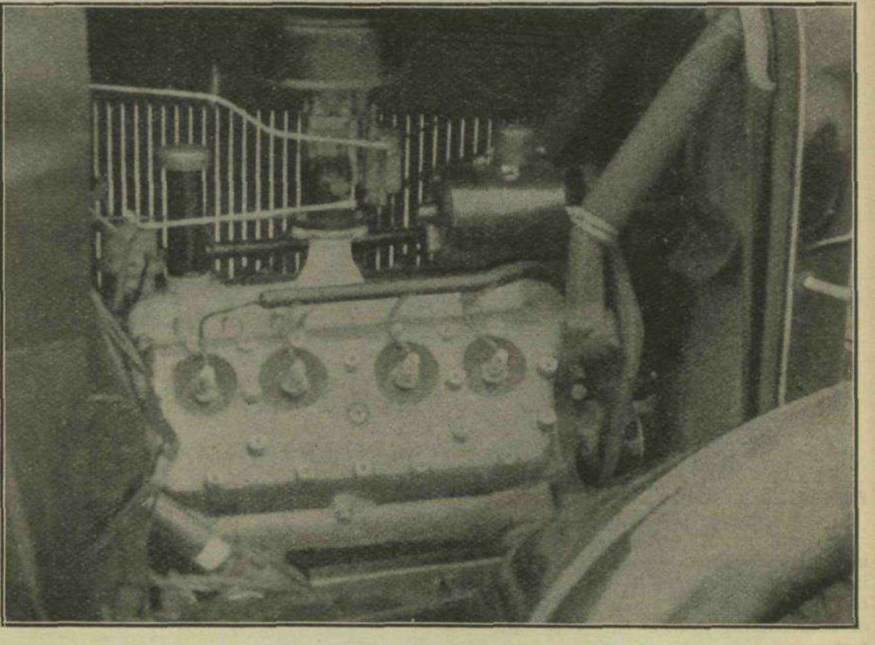
ation to the full in crowded areas without attracting unwelcome attention.

The three-speed gearbox was such that the absence of a fourth ratio was not felt. Comfortable speeds in the gears are 30 and 50, at revs. of 4,100 and 3,900 respectively, while at the maximum speed on the level, 76 on top, the engine is running at 3,700 r.p.m. By advancing the ignition another 6 degrees, which the distributor adjustment allows, the concessionaires hope to reach an even 80 m.p.h., a fine performance for a car of the Ford's comfort and flexibility.

Second gear is completely silent, and though the simplest of double-clutching ensures a silent change, the synchromesh mechanism is worth using simply as a matter of interest. To make use of this, the clutch is fully depressed and the gear-lever moved gently into the second gear notch. Cones on the pinions are brought together and synchronise their rotational speed, and they engage silently. The clutch pedal is then released gently, preferably with a depression of the accelerator to bring the engine speed up to that of the clutch member which is being driven by the back wheels.

From 40 m.p.h. the brakes brought the car to rest in 69 feet, which is not up to the normal sports car figure. In practise owing to their smooth action and the fact that the car did not swerve at all when they were applied, we were not inconvenienced. Furthermore, by taking advantage of the synchro-mesh device the brake pedal can be kept on right up to a corner, the accelerator not being required for the change-down.

Handling the car on the road, we found it would maintain an effortless 60-65 indefinitely without fuss or noise. The steering, which is rather low geared and without caster, behaves well on the open road, as it is light and accurate, but for twisty by-roads the steering wheel has to be wound about a good deal.



An off-side view of the engine.

The headlamps give an evenly illuminated field of view, and allow 50-60 m.p.h. to be kept up in safety. A control in the centre of the steering wheel dips the beam or switches off the headlights for town running.

The V8 Ford combines sports car performance with silent running and easy handling, all at a moderate price. With its compact build and high power ratio, it should be an ideal trial car, and its good acceleration makes it superior in getting away to a good many cars built initially as a sports production. T.G.M.

Do you drive to the City?

It is an undoubted fact that many more people would drive to town every day by car if they could find accommodation for their cars somewhere near their offices. A step towards the alleviation of this difficulty was made last month when a new garage was opened in the heart of the City, in Wilson Street, near Finsbury Square.

The opening ceremony was performed by Sir Malcolm Campbell before a large gathering of guests. After describing the problems of traffic congestion caused by parking in narrow thoroughfares, Sir Malcolm said, "This new venture is one which, in my opinion, deserves every support since it is particularly designed to help the private motorist. I sincerely hope that City of London Garages will soon be able to extend their activities and thereby further assist the authorities to solve the parking problem."

After Sir Malcolm had formally declared the Garage open, the guests were then conducted round the premises. The building has been constructed with the specific purpose in view of providing quick parking facilities for private motorists, and consists of four floors, capable of holding 200 cars. There are two lifts, and separate entrance and exit doors to the garage should eliminate congestion. The most up-to-date washing and greasing plant has been installed, and a staff of skilled mechanics are in attendance to undertake repairs of all kinds. The spirit of Service which inspires the City of London Garage is illustrated by the low parking charge of a shilling a day. Altogether a most commendable enterprise.

For All M.G.'s.

Lubrication is a point of utmost importance in the reliability of a sports car, and we are interested to hear that the M.G. Car Company have recently issued their official approval of Filtrate Sports Oil for all their models. In addition, for those cars fitted with a self-changing gearbox, the use of S.C. Filtrate oil is approved.

Stop!

Some form of direction indicator is now recognised as a necessary adjunct for the modern car, and we have recently inspected an original device of this nature marketed by The Atlantis Windscreen Co., Craven House, Kingsway, London, W.C.2. At the rear of the car the indicator is in the form of a thin rectangle, in which arrows to the right and left, and the word "Stop" appear, the latter being automatically operated by the foot-brake in the usual way. But it is in the forward indicator that a departure from usual practice is shown. This is composed of a driving mirror, attached to the pillar of the windscreen, and the upper half of this mirror is used as an indicator in which the arrows and word "Stop" flash out, and may be seen from the front or rear of the car. Finally, the utility of the accessory is enhanced still further by a neat parking light incorporated in the lower half of the mirror.

Three finishes are standardised for the fitment, which is priced as follows: Black, 38/6; Aluminium, 45/-; Chromium plated, 48/6.

For Austin Sevens.

The value of having a plentiful supply of really cool oil in the sump is particularly important for all sports cars capable of a high engine speed, both from the point of view of efficiency and of economy.

In view of the popularity of the Austin-Seven in competition work, a new replacement engine base which will provide this supply of cool oil has been introduced by the Ross Patents Company, of Sutton Street, Walkergate, Newcastle on Tyne. The sump, which is finished in matt chromium, has double the capacity of the normal base, and includes some original features. The filter is larger than standard, and can be withdrawn for clearing without disturbing the base. Not only will the oil be kept cooler by the increased surface of the new sump, but cooling is still further assisted by tubes running through the sump, through which there is a steady flow of air.

The price of the Ross Replacement Base is 57/6, complete with new sump gasket, and extension to oil pump (optional fitting) and spanner.

The Club that leads.

The J.C.C. held the First General Efficiency Trial in 1913 and pioneered long distance racing in England with the first 200 miles race in 1921. "Road racing" on Brooklands was a J.C.C. innovation in 1926, and the Club ran the first "Mountain" race for cars in 1927. In 1928 Britain's first dirt track meeting for cars was run by the J.C.C. at Greenford. The J.C.C. brought England her first Endurance contest in 1929, and in 1932 will lead once again with the First British 1,000 Miles Race.

To-day the J.C.C. is England's largest Associated Club.

Annual Subscription 35/-(including full Associate Membership of the R.A.C.)

It is worth joining the J.C.C.

(JUNIOR CAR CLUB)

Empire House, Brompton Road,
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Original Drypoint Etchings

of Racing Cars by R. A. Nockolds.

The following limited editions signed by the Artist are now ready :

C. R. Whitcroft	Riley
T. Nuvolari	Alfa Romeo
Sir Henry Birkin	Bentley
L. Chiron	Bugatti

Two Guineas Each.

"The Scribe" of *The Autocar* writes :

"Keeping it Cool"

"The main difficulty with an air-cooled engine is keeping it adequately lubricated ; we all know how the pressure drops after a prolonged "blind" with a water cooled engine. Sports "Filtrate" Oil was used on this occasion *(the breaking of the Double Twelve Hours, Class B/S, World's Record, by a 350 c.c. B.S.A.—1,029 miles, 491 yards in 24 hours)* and until recently I should have said that any good lubricant would have been equally satisfactory, but I have had a test of this "Filtrate" Sports Oil under observation for some time, and can definitely say that it suits sports engines. I am not going so far as to say that it is better than any other oil on the market ; but this much I can say; in a small sports car which shares my stable it is better than any other oil which has been tried in it. This little car is an Austin Seven Special, which has a Laystall crankshaft and Alta head amongst its equipment, and a speed of 45 m.p.h. in second gear is possible. With every other oil after an all-out run for a few miles the oil pressure invariably dropped considerably and gave the signal when to ease the throttle, but with "Filtrate" Sports Oil, under precisely the same conditions, the pressure has never dropped. What is more, it is surprisingly economical."—*Reproduced by kind permission of "The Autocar."*

SPORTS "Filtrate" REGᴰ OIL

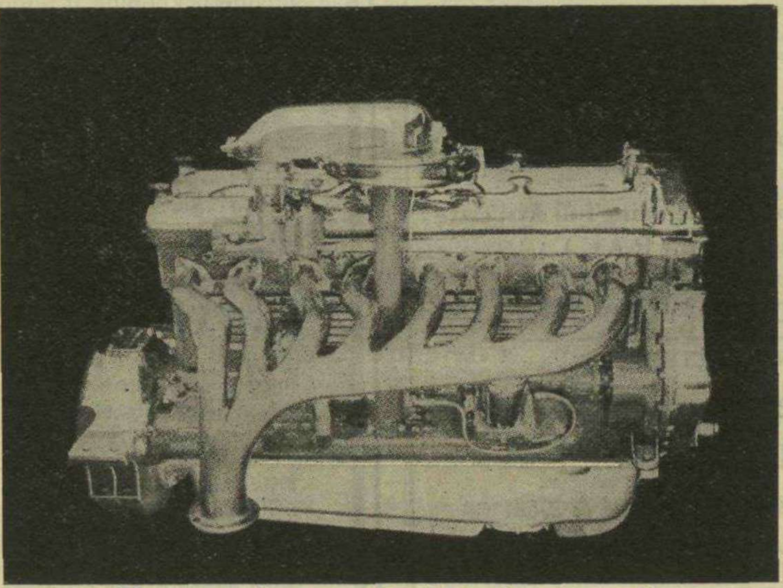
FOR ALL SPORTS CARS
AND MOTOR CYCLES

5 gall. drums	1 gall. tins	Round quart tins
6/10 per gall.	8/1	2/3

Headquarters : Filtrate Works, Leeds

A SUPERCHARGED AMERICAN SPORTS CAR

SOME DETAILS OF THE NEW DUESENBURG, FOR WHICH A PHENOMENAL PERFORMANCE IS CLAIMED


The engine of the new supercharged Duesenburg sports model.

THE average American motorist up to a short time ago was not particularly interested in the sports car, and the fact that the larger ones went quickly is mostly due to the fact that they were fitted with big engines and optimistic speedometers. The Duesenburg Corporation is one of the few companies manufacturing high grade hand-made cars, and the supercharged car which was seen in Europe for the first time at the Paris Salon should strengthen the company's reputation for producing something ahead of the other firms.

The engine is similar to that used in the ordinary model J. chassis, with certain parts strengthened to withstand the extra power. The eight cylinders each with a bore and stroke of 85 and 121 mm. have a total capacity of 6.6 litre, and the engine is stated to give 320 h.p. at 4,200 r.p.m. Four overhead valves per cylinder are used and are operated direct by two overhead camshafts. The camshafts are chain driven and valve clearance is adjusted by inserting shims. Double valve-springs, aluminium pistons, and alloy connecting rods drilled to lubricate the gudgeon pins bring the motor into line with European practise.

The centrifugal supercharger is carried above the camshaft covers, and runs at six times engine speed. The drive is taken by skew gear from the off-side accessory shaft, and the vertical shaft is carried in ball races top and bottom.

The great advantage of the centrifugal blower is its simplicity, and the rotor is merely a dished plate, 12 inches in diameter, with curved vanes. The intake is at the centre, and the compressed mixture is carried away from the outside by an annular passage which is connected to the inlet manifold. A normal Schebler carburretor is fitted, and the blower exerts 8 lbs. pressure at 4,000 r.p.m.

No trouble is experienced from overheating of the mixture, and it has actually been found desirable to warm the blower casing and the induction pipe with water jackets. The induction pipe is a simple four-branch pipe jacketted in the centre.

The chassis lay-out has some interesting features. A two-plate dry-plate clutch precedes a three-speed gear-box with silent second gear all carried in ball and roller bearings, while the semi-elliptic rear springs are relieved of driving strains by a torque tube attached to a cross member at its front end. The final drive is by hypoid pinion and bevel.

Hydraulic brakes are fitted, and the brake drums measure 15 inches in diameter and are three inches wide.

The chassis is dropped front and rear and is 8½ inches deep in the centre. A chassis lubrication system operated by the engine supplies oil to all chassis points.

Speeds of 129 m.p.h. and 104 m.p.h. on top and second are claimed with an open four-seater body, while the car is said to reach 100 m.p.h. from a standing start in 20 seconds. These figures are probably rather optimistic, as the Type 55 Bugatti takes 42 seconds from 10 m.p.h., while Gardiner's Grand Prix Delage requires 18 seconds from a standing start. We hope to be able to publish a short test later in the year. The price of this remarkable car in chassis form is about £3,500 at the factory and the agents in this country are:—Sinclair Motor Concessions, Ltd., Oxford Road, Chiswick, London, W.4.

THE RESULTS OF THE WORD MAKING COMPETITION, "IN THE DARK."

The School for the Blind at Swiss Cottage, N.W.3, has announced the result of the word-making competition promoted in aid of the School Funds, advertisements for which appeared in recent issues of MOTOR SPORT. The winning list consisted of forty-eight words, i.e.—

ANTHER, ARDENT, ARKITE, DANKER, DARKEN, DEARTH, DETAIN, DETRAIN, DINTER, DITHER, HAIRED, HANDER, HANDIER, HANKED, HANKER, HARDEN, HARKED, HARKEN, HARTIN, HATRED, HERNIA, HIATED, HINDER, HINTED, HINTER, INTAKE, KERATIN, KINDER, KREATIN, NITRED, RAINED, RANKED, RANTED, REKNIT, RETAIN, RETINA, RINKED, TANKED, TANKER THANKED, THANKER, THENAR, THINKER, THREAD, TINDER, TINKER, TIRADE, TRAINED.

Five competitors sent in lists containing the winning words and share the £100 offered in prizes.

THE 1932 RECORD BREAKING SEASON

A YEAR OF NOTABLE ACHIEVEMENTS. A NEW LAND SPEED RECORD, AND AN ASTONISHING INCREASE IN 750 c.c. FIGURES.

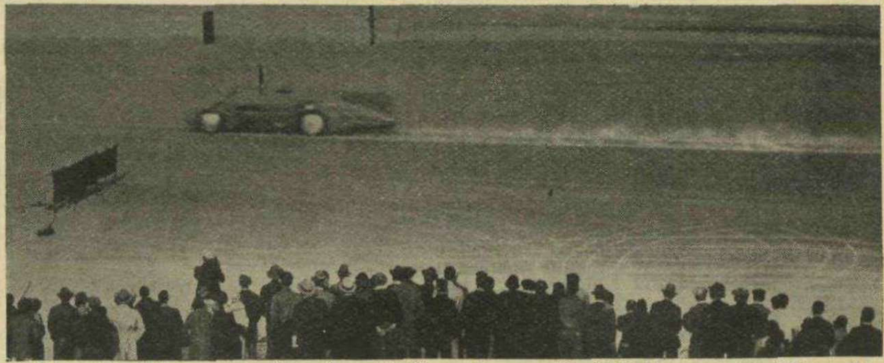
THE value of record-breaking to manufacturers is probably as great as that derived from participation in races. In addition, it has the advantage that if the record is not broken, nothing need be said about it, whereas failure to put up a good performance in a race is witnessed by everyone. But this fact does not make the actual breaking of records any easier. Existing figures are nearly always very high, and in view of the expense involved the most meticulous preparations have to be made in order to ensure success.

In 1932 the first record to be broken was the Worlds 10 Mile record, which fell to the credit of Norman ("Wizard") Smith, at a speed of 164.08 m.p.h. This run was the culminating achievement of long preparations for attempts on the World's Land Speed Record, all of which, for various reasons, came to nought. The record was made in January at Ninety-Mile Beach, situated at the northern tip of the North Island of New Zealand, and beat the previous figure of 137.21 m.p.h. held by Mrs. Stewart, on the Derby-Miller.

The Midget makes Motoring History.

The next car in the record field was the "Magic" M.G. Midget owned by J. A. Palmes, of Jarvis & Co., which in February made motoring history. The car was taken to Pendine Sands, in Wales, and in the hands of G. E. T. Eyston raised the Class H Flying Mile record to the colossal figure of 118.38 m.p.h. This historic run was the precursor of a series of marvellous performances to be put up throughout the season by the 750 c.c. M.G. Midget, which has probably made the most sensational progress in speed in any class this year.

Meanwhile Sir Malcolm Campbell was travelling to Daytona Beach in Florida with his famous "Blue Bird" where he hoped to raise his own figures for the flying kilometre and mile, with a subsequent cut at the 5 and 10 kilometre records. In the true Campbell tradition everything went absolutely to plan. The existing kilometre record stood at 246.09 m.p.h. but this did not deter Sir Malcolm in the least, and he proceeded to add another 8 m.p.h. to this figure, with a similar increase in the mile record. Having successfully accomplished the first part of his plan, Sir Malcolm Campbell then went out to beat his own records for 5 kilometres and 5 miles, which he had set up at Verneuk Pan in S. Africa. First he raised the 5 kilometre record by a cool 25 m.p.h., but not content with this, two days later he made another run at 247.94 m.p.h., as against the previous 216.04 m.p.h.! The 5 mile record he treated in the same way, putting it up from 211.49 m.p.h. to 242.75 m.p.h. Finally, he beat Borzacchini's famous 10 kilometre record of 152.90 m.p.h., made with the 4 litre Maserati on the road at Crémona, with a run at 238.67 m.p.h. Altogether a most stupendous show.



"The existing kilometre record stood at 246.09 m.p.h. . . . Sir Malcolm . . . proceeded to add another 8 m.p.h. to this figure."

"In 1932 the first record to be broken was the world's 10 mile record by Norman ('Wizard') Smith at a speed of 164.08 m.p.h."

Records Galore at Montlhéry.

The scene of activity was then transferred to that happy hunting ground of record breakers, Montlhéry, and the chief actor in the piece was a Straight-Eight Delage sports chassis fitted with a racing body. As long distance records up to 12 hours were contemplated, a team of drivers was collected for the attempt, four Englishmen, Kaye Don, G. E. T. Eyston, E. A. D. Eldridge and A. Denly, and one Frenchman, M. Frettet. In spite of bitterly cold weather (the temperature was below freezing point), the car ran with great regularity at high speed, and the 200 miles, 500 kilometres, 500 miles, 1,000 kilometres, 1,000 miles, 2,000 kilometres and the 3, 6 and 12 miles Class C records all fell by the board at speeds varying from 117.83 to 112.09 m.p.h. In addition, of these figures the 500, 1,000 and 2,000 kilometres, the 1,000 miles and the 3 and 6 hour records constituted world's records, a fine feat for a standard type sports chassis. All these records previously stood to the credit of the 8 cylinder Voisin.

A week later, early in March, two of the Delage records, the 500 kilometres and the 3 hours, were beaten by a 2.3 litre double-camshaft Bugatti driven in turn by Albert Divo and Louis Chiron. But two days previous to this run the car made a series of new records in the hands of Albert Divo. Setting off at a great pace the car took the flying kilometre and mile at 131.22 m.p.h. from Hartmann's Bugatti, the 5 kilometres at 131.03 m.p.h. from Jack Dunfee's Sunbeam and then went on to take the 50 and 100 kilometres and miles and the 200 kilometres and the 1 hour records at round about 124 m.p.h., in all cases the previous records being held by the Sunbeam. Then, as we have already stated, Divo and Chiron drove the car two days later, beating two of the Delage records, and also the 200 and 500 mile records held by the Sunbeam. Four of these figures constituted world's records.

54 Days at 56 m.p.h.!

Also in the first week of March there began an attack on long-distance records which developed into one of the most amazing runs ever accomplished in the history of record breaking. On the 5th of March a standard type 2,659 c.c. Citroen six-cylinder chassis with a racing body appeared on the Montlhéry track, and proceeded to lap at the praiseworthy, if modest by racing standards, speed of about 70 m.p.h. After doing this for a few days and nights, what little attention the Citroen had attracted was transferred to the Bugatti driven by Divo and Chiron, but after this car had successfully completed its run, and the excitement had

Continued on page 124

RECORDS TO DATE

(I) UP TO 4,000 KILOMETRES

WORLD'S RECORDS.

Record.	Speed. m.p.h.	Car and Drivers.	Track.
1 kilometre (s.)	86.90	Higham (J. G. P. Thomas)	Brooklands
1 ,, (f.)	251.34	Napier Campbell (Sir M. Campbell)	Daytona
1 mile (s.)	100.77	Sunbeam (K. Don)	Brooklands
1 ,, (f.)	253.97	Napier Campbell (Sir M. Campbell	Daytona
5 kilometres (f.)	247.94	,, ,,	,,
5 miles (f.)	242.75	,, ,,	,,
10 kilometres (f.)	238.67	,, ,,	,,
10 miles (f.)	164.08	"Enterprise" (N. Smith)	90 Miles Beach N.Z.
50 kilometres (s.)	131.16	Miller (E. A. D. Eldridge)	Montlhéry
100 ,, (s.)	131.08	Panhard (G. E. T. Eyston)	,,
200 ,, (s.)	131.14	,, ,,	,,
500 ,, (s.)	119.98	Bugatti (Divo and Chiron)	,,
1,000 ,, (s.)	117.01	Delage (Don, Eyston, Eldridge, Frettet, Denly)	,,
2,000 ,, (s.)	116.08	,, ,,	,,
3,000 ,, (s.)	113.00	Voisin (Marchand, Morel and Kiriloff)	,,
4,000 ,, (s.)	113.07	,, ,,	,,
50 miles (s.)	132.01	Panhard (Eyston)	,,
100 ,, (s.)	131.67	,, ,,	,,
200 ,, (s.)	118.00	Bugatti (Divo amd Chiron)	,,
500 ,, (s.)	119.24	,, ,,	,,
1,000 ,, (s.)	116.36	Delage (Don, Eyston, Eldridge, Frettet, Denly)	,,
2,000 ,, (s.)	116.08	,, ,,	,,
1 hour (s.)	130.73	Panhard (Eyston)	,,
3 ,, (s.)	120.64	Bugatti (Divo and Chiron)	,,
6 ,, (s.)	117.12	Delage (Don, Eyston, Eldridge, Frettet, Denly)	,,
mls. yds.			
12 hrs.(s.) 1353 1606	112.82	Voisin (Marchand, Morel and Kiriloff)	,,
24 hrs.(s.) 2723 1746	113.50	,, ,,	,,
1,000 miles (s.)	95.27	Lanchester (J. G. P. Thomas, G. Duller & L. Rapson)	Brooklands
2,000 ,, (s.)	86.69	Graham-Paige (A. G. Tulloch, D. M. K. Marendaz and E. Veendam)	Montlhéry
mls. yds.			
1 hr. (s.) 130 1265	130.73	Panhard (Eyston)	,,
3 hrs.(s.) 333 1477	111.28	Leyland (J. G. P. Thomas)	Brooklands
6 hrs.(s.) 659 1317	109.96	Leyland (J. G. P. Thomas)	,,
12 hrs.(s.) 1148 843	95.71	Lanchester (J. G. P. Thomas, G. Duller & L. Rapson)	,,
24 hrs.(s.) 2072 1126	86.36	Graham-Paige (A. G. Tulloch, D. M. K. Marendaz and E. Veenham)	Montlhéry

INTERNATIONAL CLASS A.—Over 8,000 c.c.

Record.	Speed. m.p.h.	Car and Drivers.	Track.
1 kilometre (s.)	83.67	Sunbeam (K. Lee Guinness)	Brooklands
1 ,, (f.)	251.34	Napier-Campbell (Sir M. Campbell)	Daytona
1 mile (s.)	96.63	Sunbeam (K. Lee Guinness)	Brooklands
1 ,, (f.)	253.97	Napier-Campbell (Sir M. Campbell)	Daytona
5 kilometres (f.)	247.94	,, ,,	,,
5 miles (f.)	242.75	,, ,,	,,
10 kilometres (f.)	238.67	,, ,,	,,
10 miles (f.)	129.29	Delage (J. R. Cobb)	Brooklands
50 kilometres (s.)	121.22	Delage (J. R. Cobb)	Brooklands
100 ,, (s.)	120.93	Delage (J. R. Cobb)	,,
200 ,, (s.)	105.97	Delage (J. R. Cobb)	,,
500 ,, (s.)	110.83	Renault (Garfield & Plessier)	Montlhéry
1,000 ,, (s.)	109.89	Renault (Garfield, Plessier and Guillon)	,,
2,000 ,, (s.)	107.54	,, ,,	,,
3,000 ,, (s.)	107.29	,, ,,	,,
4,000 ,, (s.)	107.92	,, ,,	,,
50 miles (s.)	121.28	Delage (J. R. Cobb)	Brooklands
100 ,, (s.)	112.13	Delage (J. R. Cobb)	Brooklands
200 ,, (s.)	107.56	Delage (J. R. Cobb)	Brooklands
500 ,, (s.)	109.60	Renault (Garfield, Plessier and Guillon)	Montlhéry
1,000 ,, (s.)	108.31	,, ,,	,,
2,000 ,, (s.)	107.49	,, ,,	,,
1 hour (s.)	112.18	Delage (J. R. Cobb)	Brooklands
3 hours (s.)	111.16	Renault (Garfield & Plessier)	Montlhéry
6 hours (s.)	110.14	Renault (Garfield, Plessier and Gullion)	,,
12 hours (s.)	107.49	,, ,,	,,
24 hours (s.)	107.90	,, ,,	,,

INTERNATIONAL CLASS B.—5,001—8,000 c.c.

Record.	Speed. m.p.h.	Car and Drivers.	Track.
1 kilometre (s.)	77.82	Panhard (M. Dore)	Arpajon
1 ,, (f.)	138.47	Panhard (M. Dore)	,,
1 mile (s.)	90.59	Panhard (M. Dore)	,,
1 ,, (f.)	137.61	Panhard (M. Dore)	,,
5 kilometres (f.)	139.84	Panhard (Breton)	Montlhéry
5 miles (f.)	138.78	Panhard (Breton)	,,
10 kilometres (f.)	138.95	Panhard (Breton)	,,
10 miles (f.)	126.03	Leyland (J. G. P. Thomas)	Brooklands
50 kilometres (s.)	130.79	Panhard (Eyston)	Montlhéry
100 ,, (s.)	131.81	Panhard (Eyston)	,,
200 ,, (s.)	131.14	Panhard (Eyston)	,,
500 ,, (s.)	111.24	Leyland (J. G. P. Thomas)	Brooklands
1,000 ,, (s.)	109.76	Leyland (J. G. P. Thomas)	,,
2,000 ,, (s.)	87.25	Graham-Paige (A. G. Tulloch, D. Marendaz & E. Veendam)	Montlhéry
3,000 ,, (s.)	86.47	,, ,,	,,
4,000 ,, (s.)	68.58	Studebaker (A. Gulotta, C. Bergere & Keiger)	Atlantic City
50 miles (s.)	132.01	Panhard (Eyston)	Montlhéry
100 ,, (s.)	131.67	Panhard (Eyston)	,,
200 ,, (s.)	101.86	Graham (D. M. K. Marendaz)	Montlhéry
500 ,, (s.)	110.04	Leyland (J. G. P. Thomas)	Brooklands

INTERNATIONAL CLASS C.—3,001-5,000 c.c.

Record.	Speed. m.p.h.	Car and Drivers.	Track.
1 kilometre (s.)	85.57	Sunbeam (K. Don)	Brooklands
1 ,, (f.)	140.95	Sunbeam (K. Don)	,,
1 mile (s.)	100.77	Sunbeam (K. Don)	,,
1 ,, (f.)	136.98	Sunbeam (K. Don)	,,
5 kilometres (f.)	130.41	Sunbeam (K. Don)	,,
5 miles (f.)	130.28	Sunbeam (K. Don)	,,
10 kilometres (f.)	152.90	Maserati (B. Borzacchini)	Cremona
10 miles (f.)	130.00	Sunbeam (K. Don)	Brooklands
50 kilometres (s.)	123.67	Sunbeam (K. Don)	,,
100 ,, (s.)	124.45	Sunbeam (K. Don)	,,
200 ,, (s.)	120.91	Sunbeam (K. Don)	,,
500 ,, (s.)	117.80	Delage, (Don, Eyston, Eldridge, Frettet, Denly)	Montlhéry
1,000 ,, (s.)	117.01	,, ,,	,,
2,000 ,, (s.)	116.08	,, ,,	,,
3,000 ,, (s.)	97.22	Delage (Bourlier, Frettet and Senechal)	,,
4,000 ,, (s.)	83.41	Hotchkiss (Tchernousky and Vasselle)	,,
50 miles (s.)	124.19	Sunbeam (K. Don)	Brooklands
100 ,, (s.)	123.74	Sunbeam (K. Don)	,,
200 ,, (s.)	117.47	Delage (Don, Eyston, Eldridge, Frettet, Denly)	Montlhéry
500 ,, (s.)	116.73	,, ,,	,,
1,000 ,, (s.)	116.36	,, ,,	,,
2,000 ,, (s.)	97.43	Delage (Bourlier, Senechal and Frettet)	,,
mls. yds.			
1 hr. 120 1402	120.80	Sunbeam (K. Don)	Brooklands
3 hrs. 353 866	117.83	Delage (Don, Eyston, Eldridge, Frettet, Denly)	Montlhéry
6 hrs. 702 1247	117.12	,, ,,	,,
12 hrs. 1345 78	112.09	,, ,,	,,
24 hrs. 2292 505	95.52	Delage (Bourlier, Senechal and Frettet)	,,

INTERNATIONAL CLASS D.—2,001-3,000 c.c.

Record.	Speed. m.p.h.	Car and Drivers.	Track.
1 kilometre (s.)	80.32	Bugatti (W. Y. Craig)	Brooklands
1 ,, (f.)	131.22	Bugatti (Divo)	Montlhéry
1 mile (s.)	90.77	Bugatti (L. Hartmann)	Tat
1 ,, (f.)	131.22	Bugatti (Divo)	Montlhéry
5 kilometres (f.)	131.03	Bugatti (Divo)	,,
5 miles (f.)	126.85	Sunbeam (J. Dunfee)	,,
10 kilometres (f.)	138.77	Alfa-Romeo (Brilli Peri)	Cremona
10 miles (f.)	126.48	Sunbeam (J. Dunfee)	Montlhéry
50 kilometres (s.)	129.17	Bugatti (Divo)	,,
100 ,, (s.)	130.14	Bugatti (Divo)	,,
200 ,, (s.)	124.67	Bugatti (Divo)	,,
500 ,, (s.)	119.98	Bugatti (Divo and Chiron)	,,
1,000 ,, (s.)	104.76	Talbot (B. E. Lewis and J. S. Hindmarsh)	Brooklands
2,000 ,, (s.)	100.23	Bentley (W. Barnato, J. D. Benjafield & F. Clement)	Montlhéry
3,000 ,, (s.)	94.86	Bentley (J. F. Duff and W. Barnato)	,,
4,000 ,, (s.)	72.00	Invicta (Mrs. Hindmarsh, Bing, Garland, Moy, Mills and Macfarlane)	,,
50 miles (s.)	130.04	Bugatti (Divo)	,,
100 ,, (s.)	124.15	Bugatti (Divo)	,,
200 ,, (s.)	118.00	Bugatti (Divo and Chiron)	,,
500 ,, (s.)	119.24	Bugatti (Divo and Chiron)	,,
1,000 ,, (s.)	101.56	Bentley (Barnato, Duller and Clement)	,,
2,000 ,, (s.)	94.83	Bentley (Duff and Barnato)	,,
mls. yds.			
1 hr. 124 1196	124.68	Bugatti (Divo)	,,
3 hrs. 361 1614	120.64	Bugatti (Divo and Chiron)	,,
6 hrs. 628 1104	104.77	Talbot (Lewis & Hindmarsh)	Brooklands
12 hrs. 1211 952	100.96	Bentley (Barnato, Duller and Clement)	Montlhéry
24 hrs. 2280 1113	95.03	Bentley (Barnato and Duff)	,,

INTERNATIONAL CLASS E.—1,501-2,000 c.c.

Record.	Speed. m.p.h.	Car and Drivers.	Track.
1 kilometre (s.)	83.44	Bugatti (Prince F. Liechtenstein)	Tat
1 ,, (f.)	139.33	Miller (E. A. D. Eldridge)	Montlhéry

RECORDS TO DATE—continued.

Record.	Speed. m.p.h.	Car and Drivers.	Track.
1 mile (s.)	94.01	Bugatti (Prince F. Leichtenstein)	Tat
1 ,, (f.)	136.26	Miller (E. A. D. Eldridge)	Montlhéry
5 kilometres (f.)	139.81	Derby-Miller (Mrs. G. M. Stewart)	,,
5 miles (f.)	139.41	,, ,,	,,
10 kilometres (f.)	139.49	,, ,,	,,
10 miles (f.)	134.26	,, ,,	,,
50 kilometres (s.)	126.83	,, ,,	,,
100 ,, (s.)	128.16	,, ,,	,,
200 ,, (s.)	121.75	,, ,,	,,
500 ,, (s.)	109.67	Sunbeam (J. Dunfee and P. Bamber)	,,
1,000 ,, (s.)	97.11	Alfa-Romeo (M. Benoist, Chinetti and Zehender)	,,
2,000 ,, (s.)	94.98	Alfa-Romeo (Chinetti, Zehender and Pesato)	,,
3,000 ,, (s.)	95.89	,, ,,	,,
4,000 ,, (s.)	93.75	,, ,,	,,
50 miles (s.)	127.97	Derby-Miller (Mrs. G. M. Stewart)	,,
100 ,, (s.)	121.64	,, ,,	,,
200 ,, (s.)	117.67	Sunbeam (J. Dunfee and P. Bamber)	,,
500 ,, (s.)	97.99	Alfa-Romeo (M. Benoist, Chinetti and Zehender)	,,
1,000 ,, (s.)	97.40	,, ,,	,,
2,000 ,, (s.)	96.04	Alfa-Romeo (Chinetti, Zehender and Pesato)	,,
mls. yds.			
1 hr. (s.) 121 1324	121.75	Derby-Miller (Mrs. G. M. Stewart)	,,
3 hrs. (s.) 328 1120	109.54	Sunbeam (J. Dunfee and P. Bamber)	,,
6 hrs. (s.) 584 482	97.38	Alfa-Romeo (Chinetti, Zehender and Pesato)	,,
12 hrs. (s.) 1163 873	96.96	,, ,,	,,
24 hrs. (s.) 2301 417	95.88	,, ,,	,,

INTERNATIONAL CLASS F.—1,101-1,500 c.c.

Record.	Speed. m.p.h.	Car and Drivers.	Track.
1 kilometre (s.)	83.09	Amilcar (A. Morel)	Arpajon
1 ,, (f.)	143.30	Packard Cable Sp. (L. Duray)	,,
1 mile (s.)	92.33	Talbot (A. Divo)	,,
1 ,, (f.)	164.01	Miller (F. Lockhart)	Murock
5 kilometres (f.)	139.54	Packard Cable Sp. (L. Duray)	Montlhéry
5 miles (s.)	139.22	,, ,,	,,
10 kilometres (f.)	138.92	,, ,,	,,
10 miles (f.)	135.33	,, ,,	,,
50 kilometres (s.)	120.06	Miller (E. A. D. Eldridge)	,,
100 ,, (s.)	122.46	,, ,,	,,
200 ,, (s.)	118.32	Derby-Miller (Mrs. G. M. Stewart)	,,
500 ,, (s.)	102.77	Delage (W. B. Scott and M. Baumer)	Brooklands
1,000 ,, (s.)	98.73	,, ,,	,,
2,000 ,, (s.)	91.68	Riley (Eyston, Denly and McClure)	Montlhéry
3,000 ,, (s.)	82.54	,, ,,	,,
4,000 ,, (s.)	57.82	Singer (G. Eyston, A. Denly, P. Brewster & E. Eldridge)	,,
50 miles (s.)	121.88	Miller (E. A. D. Eldridge)	,,
100 ,, (s.)	118.13	Derby-Miller (Mrs. G. M. Stewart)	,,
200 ,, (s.)	111.65	Riley (G. E. T. Eyston)	,,
500 ,, (s.)	98.37	Alvis (L. Cushman and C. M. Harvey)	Brooklands
1,000 ,, (s.)	95.24	,, ,,	,,
2,000 ,, (s.)	69.00	Delage (W. B. Scott, A. Payn and T. Rose-Richards)	Montlhéry
mls. yds.			
1 hr. (s.) 118 510	118.29	Derby-Miller (Mrs. G. M. Stewart)	,,
3 hrs. (s.) 308 737	102.81	Delage (W. B. Scott and M. Baumer)	Brooklands
6 hrs. (s.) 589 1105	98.27	,, ,,	,,
12 hrs. (s.) 1113 1443	92.82	Riley (Eyston, Denly and McClure)	Montlhéry
24 hrs. (s.) 1977 1388	82.41	,, ,,	,,

INTERNATIONAL CLASS G.—751-1,100 c.c.

Record.	Speed. m.p.h.	Car and Drivers.	Track.
1 kilometre (s.)	78.34	Amilcar (C. Martin)	Arpajon
1 ,, (f.)	128.55	Amilcar (A. Morel)	Montlhéry
1 mile (s.)	71.12	Frazer Nash (A. Frazer Nash)	Brooklands
1 ,, (f.)	128.02	Amilcar (A. Morel)	Montlhéry
5 kilometres (f.)	127.63	Amilcar (A. Morel)	,,
5 miles (f.)	127.24	Amilcar (A. Morel)	,,
10 kilometres (f.)	127.11	Amilcar (A. Morel)	,,
10 miles (f.)	126.89	Amilcar (A. Morel)	,,
50 kilometres (s.)	109.18	Riley (F. W. Dixon)	Brooklands
100 ,, (s.)	110.78	Riley (F. W. Dixon)	,,
200 ,, (s.)	110.67	Riley (F. W. Dixon)	,,
500 ,, (s.)	104.09	Riley (G. Eyston and A. Denly)	Montlhéry
1,000 ,, (s.)	99.26	,, ,,	,,
2,000 ,, (s.)	66.82	Riley (G. Eyston and E. A. D. Eldridge)	,,
3,000 ,, (s.)	65.78	,, ,,	,,
4,000 ,, (s.)	64.85	,, ,,	,,
50 miles (s.)	110.37	Riley (F. W. Dixon)	Brooklands
100 ,, (s.)	111.09	Riley (F. W. Dixon)	,,
200 miles (s.)	104.20	Riley (G. Eyston & A. Denly)	Montlhéry
500 ,, (s.)	98.18	,, ,,	,,
1,000 miles (s.)	67.80	Riley (E. A. D. Eldridge and G. Eyston)	Montlhéry
2,000 ,, (s.)	65.53	,, ,,	,,
mls. yds.			
1 hr. (s.) 110 1632	110.93	Riley (F. W. Dixon)	Brooklands
3 hrs. (s.) 312 464	104.09	Riley (G. Eyston & A. Denly)	Montlhéry
6 hrs. (s.) 594 692	99.07	,, ,,	,,
12 hrs. (s.) 913 1601	76.1	Salmson (A. Clerici and J. Luciardi)	Monza
24 hrs. (s.) 1599 123	66.62	Riley (G. Eyston and E. A. D. Eldridge)	Montlhéry

INTERNATIONAL CLASS H.—501-750 c.c.

Record.	Speed. m.p.h.	Car and Drivers.	Track.
1 kilometre (s.)	67.21	M.G. (E. R. Hall)	Brooklands
1 ,, (f.)	120.56	M.G. (G. Eyston)	Montlhéry
1 mile (s.)	74.74	M.G. (E. R. Hall)	Brooklands
1 ,, (f.)	120.56	M.G. (G. Eyston)	Montlhéry
5 kilometres (f.)	120.52	M.G. Midget (G. E. T. Eyston)	,,
5 miles (f.)	116.71	,, ,,	,,
10 kilometres (f.)	117.42	,, ,,	,,
10 miles (f.)	114.46	,, ,,	,,
50 kilometres (s.)	98.71	,, ,,	,,
100 ,, (s.)	100.31	,, ,,	,,
200 ,, (s.)	90.73	Austin (L. P. Driscoll)	Brooklands
500 ,, (s.)	89.61	Austin (L. Cushman and L. P. Driscoll)	,,
1,000 ,, (s.)	82.81	Austin (S. C. H. Davis and C. Goodacre)	,,
2,000 ,, (s.)	65.21	Austin (C. Chase, B. Bland and H. D. Parker)	Montlhéry
3,000 ,, (s.)	None	None	
4,000 ,, (s.)	None	None	
50 miles (s.)	99.83	M.G. Midget (G. E. T. Eyston)	,,
100 ,, (s.)	101.09	,, ,,	,,
200 ,, (s.)	90.78	Austin (L. P. Driscoll)	Brooklands
500 ,, (s.)	90.11	Austin (L. P. Driscoll and L. Cushman)	,,
1,000 ,, (s.)	69.19	M.G. (Eyston, Wisdon & Denly)	Montlhéry
2,000 ,, (s.)	69.95	,, ,,	,,
mls. yds.			
1 hr. (s.) 101 191	101.11	M.G. Midget (G. E. T. Eyston)	,,
3 hrs. (s.) 271 271	90.38	Austin (L. P. Driscoll)	Brooklands
6 hrs. (s.) 540 1286	90.12	Austin (L. Cushman and L. P. Driscoll)	,,
12 hrs. (s.) 980 957	81.71	Austin (S. C. H. Davis and C. Goodacre)	,,
24 hrs. (s.) 1694 1126	70.61	M.G. (Eyston, Wisdon & Denly)	Montlhéry

INTERNATIONAL CLASS I.—351-500 c.c.

Record.	Speed. m.p.h.	Car and Drivers.	Track.
1 kilometre (s.)	55.83	D. K. W. Silton Special (V. de Strasser Silton)	Neunkirchen
1 ,, (f.)	84.58	De Rovin (De Rovin)	Arpajon
1 mile (s.)	59.89	D.K.W. Silton Special (V. de Strasser Silton)	Tat
5 kilometres (f.)	83.97	de Rovin (de Rovin)	Montlhéry
5 miles (f.)	82.49	de Rovin (de Rovin)	,,
10 kilometres (f.)	82.73	de Rovin (de Rovin)	,,
10 miles (f.)	81.91	de Rovin (de Rovin)	,,
50 kilometres (s.)	78.24	de Rovin (de Rovin)	,,
100 ,, (s.)	76.70	Voran (R. Von Koenig-Fachsenfeld)	,,
200 ,, (s.)	68.63	D.K.W. (R. Von Koenig-Fachsenfeld and F. C. Meyer)	,,
500 ,, (s.)	65.55	,, ,,	,,
1,000 ,, (s.)	63.95	,, ,,	,,
2,000 ,, (s.)	61.08	,, ,,	,,
50 miles (s.)	77.31	Voran (R. Von Koenig-Fachsenfeld)	,,
100 ,, (s.)	68.56	D.K.W. (R. Von Koenig-Fachsenfeld and F. C. Meyer)	,,
200 ,, (s.)	66.84	,, ,,	,,
500 ,, (s.)	64.57	,, ,,	,,
1,000 ,, (s.)	62.56	,, ,,	,,
mls. yds.			
1 hr. (s.) 74 700	74.44	de Rovin (de Rovin)	,,
3 hrs. (s.) 200 923	66.84	D.K.W. (R. Von Koenig-Fachsenfeld and F. Meyer)	,,
6 hrs. (s.) 395 273	65.85	,, ,,	,,
12 hrs. (s.) 763 1429	63.65	,, ,,	,,
24 hrs. (s.) 1364 1065	56.85	,, ,,	,,

INTERNATIONAL CLASS J.—Up to 350 c.c.

Record.	Speed. m.p.h.	Car and Drivers.	Track.
1 kilometre (s.)	52.92	Jappic (H. M. Walters)	Brooklands
1 ,, (f.)	76.75	Jappic (Mrs. Stewart)	Arpajon
1 mile (s.)	58.12	Jappic (H. M. Walters)	Brooklands
1 ,, (f.)	75.44	Jappic (Mrs. Stewart)	Arpajon
5 kilometres (f.)	76.94	H.S. (W. D. Hawkes)	Montlhéry
5 miles (f.)	76.74	,, ,,	,,
10 kilometres (f.)	76.74	,, ,,	,,
10 miles (f.)	76.49	,, ,,	,,
50 kilometres (s.)	70.25	H.S. (Mrs. Stewart)	,,
100 ,, (s.)	70.88	H.S. (Mrs. Stewart)	,,
200 ,, (s.)	62.93	Voran (R. Von Koenig-Fachsenfeld)	,,
50 miles (s.)	70.73	H.S. (Mrs. Stewart)	,,
100 ,, (s.)	70.95	H.S. (Mrs. Stewart)	,,
mls. yds.			
1 hr. (s.) 70 1672	70.91	H.S. (Mrs. Stewart)	,,

RECORDS TO DATE—continued.

Record.	mls.	yds.	Speed. m.p.h.	Car and Drivers.	Track.
3 hrs.(s.)	103	1670	34.65	Antony (Antony)	St. Germain
6 hrs.(s.)	171	1221	28.62	Antony (Antony)	,,
12 hrs.(s.)	312	44	26.0	Antony (Antony)	,,
24 hrs.(s.)	4821	416	20.12	Antony (Antony)	,,

(2) LONG DISTANCE RECORDS

World's Records.

Record.	Speed.	Car and Drivers.	Track.
5,000-50,000 k.s. (s.)	From 112.93-74.53	Voisin (Marchand, etc.)	Montlhéry
3,000 miles (s.)	113.14	Voisin (Marchand, etc.)	,,
4,000 ,, (s.)	93.97	Alfa-Romeo (Chinetti, Pesato and Zehender)	,,
5,000-30,000 ms. (s.)	From 91.17-74.44	Voisin (Marchand, etc.)	,,
2 days (s.)	94.40	Alfa Romeo (Chinetti, Pesato and Zehender)	,,
3-17 days (s.)	From 88.54-74.48	V oisin (Marchand, etc.)	,,

INTERNATIONAL CLASS " B."

Record.	Speed.	Car and Drivers.	Track.
5,000-45,000 kls. (s.)	From 68.71-68.28	Studebaker (Gulotta, Gleason, etc.)	Atlantic City
3,000-30,000 mls. (s.)	From 68.70-68.36	,, ,,	,,

INTERNATIONAL CLASS " C."

Record.	Speed.	Car and Drivers.	Track.
5,000-40,000 kls. (s.)	From 83.57-65.85	Hotchkiss (Tchernousky, Vasselle, etc.)	Montlhéry
3,000-25,000 mls. (s.)	From 83.40-65.85	,, ,,	,,
2-16 days (s.)	From 82.62-65.90	,, ,,	,,

INTERNATIONAL CLASS " D."

Record.	Speed.	Car and Drivers.	Track.
5,000 kilometres (s.)	72.11	Invicta (Miss Cordery, Bing, etc.)	Montlhéry
10,000-130,000 kls. (s.)	From 70.84-64.84	Citroen (Marchand, etc.)	,,
3,000 miles (s.)	72.02	Invicta (Miss Cordery, Bing, etc.)	,,
4,000 ,, (s.)	72.40	,, ,,	,,
5,000-80,000 mls. (s.)	From 70.90-64.84	Citroen (Marchand, etc.)	,,
2-54 days (s.)	From 70.93-64.65	,, ,,	,,

INTERNATIONAL CLASS " E."

Record.	Speed.	Car and Drivers.	Track.
5,000 kilometres	93.84	Alfa-Romeo (Chinetti, Pesato and Zehender)	Montlhéry
10,000 ,,	77.39	A.C. (Mr. & Mrs. Bruce)	,,
15,000 ,,	75.73	A.C. (Mr. & Mrs. Bruce)	,,
20,000 ,,	66.76	A.C. (Mr. & Mrs. Bruce and Joyce)	,,
3,000 miles	94.34	Alfa-Romeo (Chinetti, Pesato and Zehender)	,,
4,000 ,,	93.97	,, ,,	,,
5,000 ,,	78.13	A.C. (Mr. & Mrs. Bruce)	,,
10,000 ,,	66.44	A.C. (Mr. & Mrs. Bruce)	,,
15,000 ,,	68.01	A.C. (Mr. & Mrs. Bruce and Joyce)	,,

Record.	Speed. m.p.h.	Car and Drivers.	Track.
2 days	94.40	Alfa-Romeo (Chinetti, Pesato and Zehender)	Montlhèry
3 days	62.67	Singer (G. E. T. Eyston, E. A. D. Eldridge, P. Brewster and A. W. Denly)	,,
4 days	62.51	,, ,,	,,

INTERNATIONAL CLASS " F."

Record.	Speed.	Car and Drivers.	Track.
4,000 kilometres	57.82	Singer (G. E. T. Eyston, E. A. D. Eldridge, P. Brewster and A. W. Denly)	Montlhéry
5,000 ,,	55.90	,, ,,	,,
10,000 ,,	48.36	Fiat (Silvani, Attilio, etc.)	Monza
3,000 miles	55.87	Singer (G. E. T. Eyston, E. A. D. Eldridge, P. Brewster and A. W. Denly)	Montlhéry
4,000 ,,	46.51	Fiat (Silvani, Attilio, etc.)	Monza
5,000 ,,	47.24	Fiat (Silvani, Attilio, etc.)	,,
2 days	57.99	Singer (G. E. T. Eyston, E. A. D. Eldridge, P. Brewster and A. W. Denly)	Montlhéry

INTERNATIONAL CLASS " G."

Record.	Speed.	Car and Drivers.	Track.
5,000 kilometres	64.39	Riley (Eldridge & Eyston)	Montlhéry
10,000 ,,	51.20	Renault (Bertrand, Armand, etc.)	Miramas
15,000 ,,	48.97	,, ,,	,,
3,000 miles	64.44	Riley (Eldridge & Eyston)	Montlhéry
4,000 ,,	50.80	Renault (Bertrand, Armand, etc.)	Miramas
5,000 ,,	50.78	,, ,,	,,
10,000 ,,	49.18	,, ,,	,,
2 days	64.37	Riley (Eldridge & Eyston)	Montlhéry

BROOKLANDS RECORDS.

Main Outer Circuit Lap Record.

Bentley (Sir H. Birkin) .... 137.96 m.p.h.

Mountain Circuit Lap Record.

Maserati (W. Straight) .... 78.00 m.p.h

CLASS RECORDS.

Main Outer Circuit.

Class A.	Delage (J. R. Cobb)	133.88 m.p.h.
,, B.	Panhard (G. E. T. Eyston)	131.76 m.p.h.
,, C.	Bentley (Sir H. Birkin)	137.96 m.p.h.
,, D.	Bugatti (Sir H. Birkin)	125.14 m.p.h.
,, E.	Sunbeam (K. Don)	126.73 m.p.h.
,, F.	Delage (Earl Howe)	127.05 m.p.h.
,, G.	Salmson (A. Goutte)	114.49 m.p.h.
,, H.	M.G. (R. T. Horton)	115.29 m.p.h.
Ladies' Record.	Leyland-Thomas (Mrs. T. H. Wisdom)	121.47 m.p.h.

Mountain Circuit.

Class A.	No record.	
,, B.	Mercédès-Benz (Sir M. Campbell)	73.89 m.p.h.
,, C.	Invicta (R. Mays)	69.74 m.p.h.
,, D.	Maserati (W. Straight)	78.00 m.p.h.
,, E.	Bugatti (R. E. O. Shuttleworth)	69.05 m.p.h.
,, F.	Delage (Sir M. Campbell)	73.13 m.p.h.
,, G.	Salmson (J. H. Bartlett)	68.38 m.p.h.
,, H.	M.G. (H. C. Hamilton)	69.28 m.p.h.

British Double 12-Hour Record.

mls.	yds.	m.p.h.	
2082	1726	86.79	Bentley (J. F. Duff), Brooklands

Test Hill Record.

Cars. m.p.h.		Cyclecars. m.p.h.	
32.444	Frazer Nash (R. G. J. Nash)	28.31	Frazer Nash (L. Cushman)

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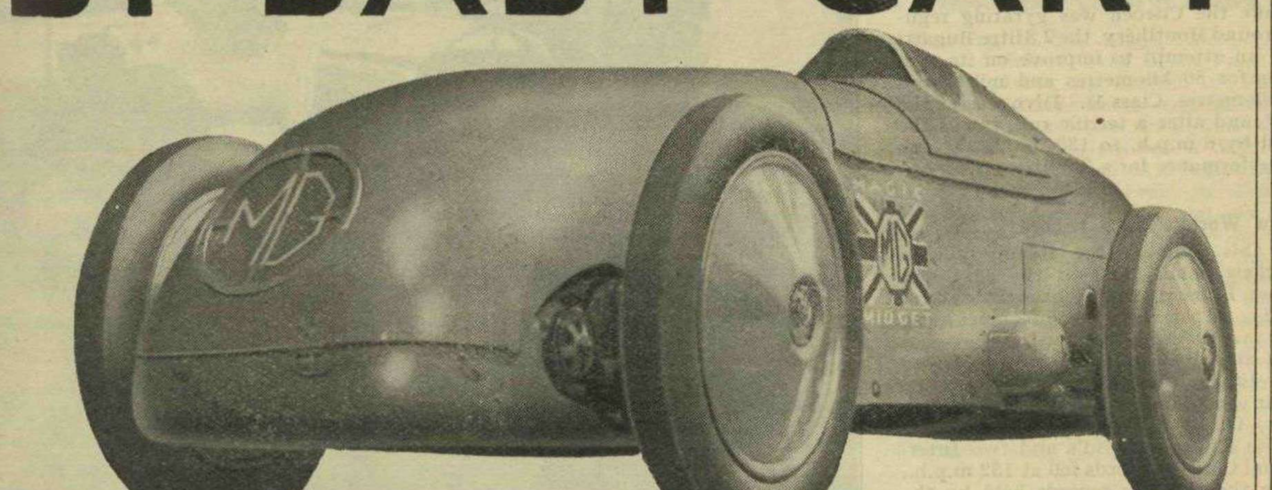


MG SMASHES FIVE RECORDS

driven by Mr. G. E. T. Eyston

using

The following International Class H records were broken at Montlhéry on Dec. 13th by an M.G. MIDGET fitted with a Powerplus Supercharger

1 Mile	**at 120.56 m.p.h.**
1 Kilometre	**at 120.56 m.p.h.**
5 Miles	**at 116.71 m.p.h.**
5 Kms.	**at 120.52 m.p.h.**
10 Kms.	**at 117.42 m.p.h.**

(Subject to official confirmation)

WAKEFIELD
Castrol
MOTOR OIL

and CASTROLLO
the Upper Cylinder Lubricant

THE 1932 RECORD BREAKING SEASON—continued.

died down, the Citroen was still circling steadily round the track. Days mounted up till a week had passed, one week turned into many, and the Citroen almost became a permanent part of Montlhéry scenery. With hardly any variation in its speed the car lapped smoothly and quietly, the driving being shared by the brothers C. and L. Marchand, of Voisin fame, Combette, Fortin and de Présale. All this time a colossal list of records was being amassed, and when at last on the 28th day of April the Citroen finally finished its Marathon, 54 days had elapsed since it first took the track and no fewer than 81 International Class D records and 50 World's Records had fallen to its credit! By a standard type chassis covering 83,802 miles in 54 days at an average speed of 64.65 m.p.h., no finer testimony could be provided of the sterling qualities of the marque, and the Citroen concern are to be congratulated on submitting one of their products to such a searching test.

While the Citroen was gyrating regularly round Montlhéry, the 2.3 litre Bugatti made an attempt to improve on its own figures for 50 kilometres and miles, and 100 kilometres, Class D. Divo was at the wheel, and after a terrific run, raised the record by 6 m.p.h. to 130 m.p.h., a very fine performance for a 2.3 litre car.

A New World's Hour Record.

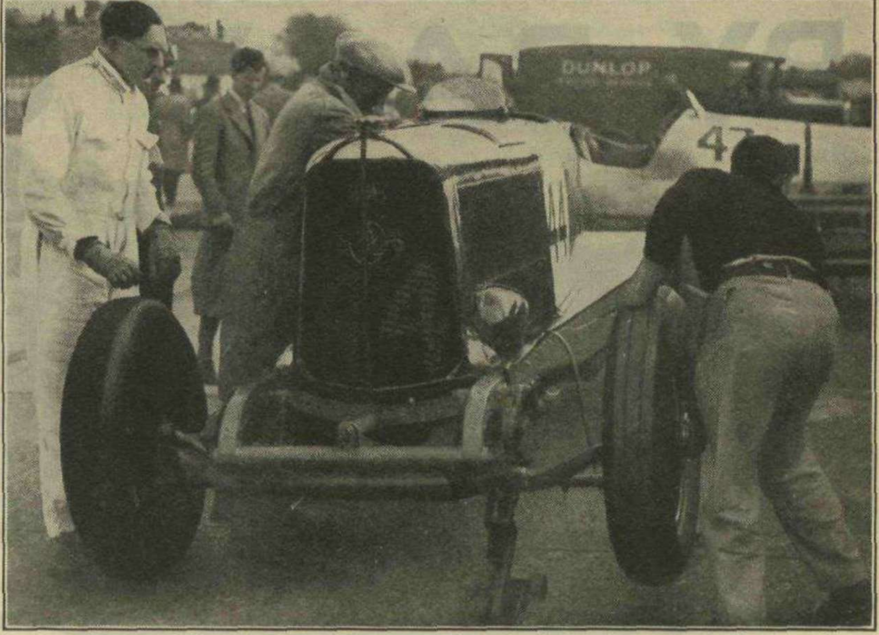
At this juncture the timing officials had their hands full, for the next day another French car was brought out for records, in this case the machine being the "razor-blade" Panhard et Levassor which already held many records driven by Breton and Orstmans. Now, however, the car was to be entrusted to the English driver, G. E. T. Eyston. On the first day the 50 miles world's and two International Class B records fell at 132 m.p.h., raising the previous records held by the same car by some 3 m.p.h. Thus encouraged, Eyston went out the next day for records up to 200 kilometres, and once again the car proved its worth by breaking the world's and Class B records for the 100 kilometres and miles, the 200 kilometres and 1 hour. The world's kilometre records were previously held by the Derby-Miller, the 100 miles and 1 hour by the Voisin. The speed of the Panhard was round about 130/131 for all the records, the greatly coveted world's hour record actually being taken at a speed of 131.14 m.p.h., as against the 128.35 of Marchand's Voisin.

Four days later, at Neunkirchen, V. de Strasser Silton took out his special D.K.W. and beat his own figure for the Class I standing kilometre with a speed of 55.83 m.p.h., also annexing the standing mile from de Rovin's de Rovin at 59.68 m.p.h. Both very good performances for a 2 cylinder car of only 493 c.c.

After this busy period of activity came a lull of two months, when on the first two days of June the late André Boillot and M. Roux succeeded in breaking the Class F 24 hours record on Miramas track at an average speed of 68.61 m.p.h. Their car was a 4 cylinder 1,500 c.c. Peugeot, and they beat the previous record held by W. B. Scott's Delage by 2 m.p.h.

A Quick 1½ litre.

By this time the racing season was in full swing, so that there was no time left for record-breaking. Added to this a serious fire occurred at Montlhéry which demolished almost the whole of the banking at one end of the track. It was not until October 14th that another attempt of any sort was essayed, the car being the 1½ litre 6 cylinder Riley which had been gradually developed throughout the racing season until it had finally shown what it was capable of in the 500 Miles Race at Brooklands by lapping at about 113 m.p.h. G. E. T. Eyston was at the wheel and only two records were taken at Brooklands, the International Class F record for 200 miles, and the British Class F record for 200 kilometres, in both cases at over 111 m.p.h. Having stood up to this speed satisfactorily, the car was then shipped to Montlhéry for long distance records. By this time the track had been repaired, but there was still a ragged cavity at the top of the banking at one point. As the Riley was attempting the 24 hour record, precautions had to be taken that this chasm was adequately marked, and although the Riley had to go perilously near it on every lap, no accident occurred. In all, four Class F records were annexed, namely the 2,000 and 3,000 kilometres, and the 12 and 24 hours, at speeds varying from 91.68 m.p.h. to 82.41 m.p.h. The 2,000 kilometre record had stood to the credit of the old Aston-Martin since 1922, the 3,000 kilometre record was taken from Scott's Delage, the 12 hours from Harvey's Alvis, and the 24 hours from Boillot's Peugeot, which had made its record at Miramas earlier in the year.



"The 'razor-blade' Panhard . . . was entrusted to the English driver, G. E. T. Eyston."

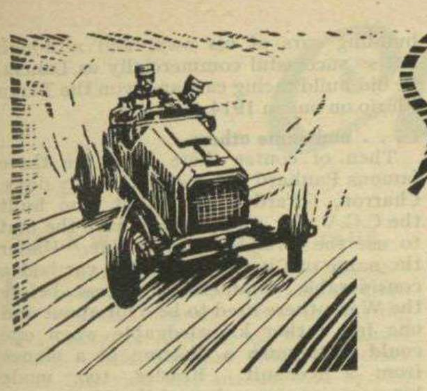
"Records Week" at Brooklands.

Then the Brooklands authorities conceived the idea of having a "records week," during which potential record breakers were given special facilities at reduced rates. First on the scene was R. G. J. Nash on the Frazer-Nash "Terror," who proceeded to demonstrate how fast this famous little car could surmount the Test Hill. The existing record had stood since 1925, but with a terrific leap at the top of the hill, the Frazer-Nash succeeded in setting up a new record at a speed of 32.444 m.p.h. Three days later Nash had a shot at the British standing kilometre record, and clocked 29.475 secs., or a speed of 75.89 m.p.h., thereby beating the late Sir Henry Segrave's record of 74.44 m.p.h. on a 4 cylinder Talbot Darracq in 1925.

Next on the Track was that brilliant newcomer to car-racing, "Freddie" Dixon. With his by no means new Riley Nine, the one time motor-cyclist gave a most remarkable demonstration of what can be accomplished by years of experience in high speed tuning. The first record to fall was the International Class G 50 kilometres at 109.18 m.p.h., and with the car running in great form, Dixon carried on to break a whole crop of records. The 50 miles, the 100, 200 kilometres and miles, and the most coveted of the lot, the one hour, all fell at speeds of 110/111 m.p.h. One need only add that the previous records were held by the "works" Riley driven by G. E. T. Eyston to realise the merit of Dixon's performance.

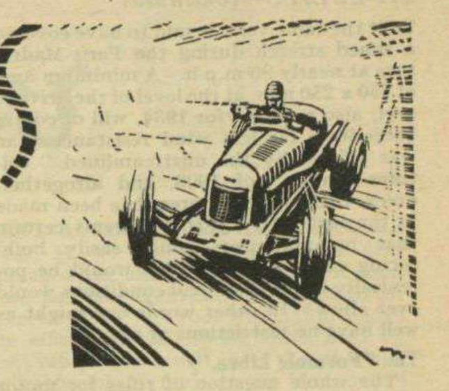
There is always something very attractive about standing kilometre and mile records, for they are tests of acceleration rather than prolonged maximum speed. In Class H, these records stood to the credit of the Austin Seven, but on November 1st E. R. Hall appeared at Brooklands with the intention of annexing them for the M.G. concern. And he was successful, for he raised the kilometre figure by 2 m.p.h. to 67.21 m.p.h. and the mile by 3 m.p.h. to 74.74 m.p.h., thereby

[Continued on page 126



SIDESLIPS

By Baladeur



An Early Motoring Book.

AMONG my collection of books, ancient and modern, on motoring, there is one of which I am particularly fond, and which is entitled "Les Grands Itinéraires en Automobile," by Baron Pierre de Crawbez. The curious thing is that I cannot now remember where I acquired this volume, but I have a faint recollection that it caught my eye in a second-hand bookshop in a small town somewhere in the centre of France.

The name of the author is at least familiar to all who know the history of motor racing in the early days. To the best of my recollection the first appearance of the Baron in the great races was in 1901, when he drove a 40 h.p. Panhard et Levassor in Paris-Bordeaux and Paris-Berlin, while the next year he was sixth in Paris-Vienna, also on a 40 h.p. Panhard. De Crawbez however will always be remembered primarily as the virtual founder in 1902 of the Circuit des Ardennes, the Belgian race which was destined to become one of the most important and most popular events in the motor racing calendar. He himself took part in the first race of the series on a 70 h.p. Panhard et Levassor, but after making the fastest lap of the day, his car collided with a Germain and was put out of the race. Everyone, however, was delighted when after running fourth in Paris-Madrid on an 80 h.p. Panhard, the popular Baron won the 1903 Circuit des Ardennes with this type of car. The next year he took part in the French Eliminating Race for the Gordon Bennett Cup on a 100 h.p. Hotchkiss, and finally represented Belgium, his native country, on a 60 h.p. Pipe in the race for the cup in Germany.

Touring all over Europe in 1906.

In spite of this racing activity, however, de Crawbez evidently managed to put in an enormous amount of long distance touring, as is shown by his "Grands Itinéraires," which represent the record of his travels. The book is undated (a bad fault this, which a good many guide books suffer from), but from the advertisements of cars at the end of it, I judge that it was published no later than 1907. In order that what follows may be really appreciated I suggest that those who drove even 1904 cars in the recent Brighton Run consider for a moment that the cars used by de Crawbez can at most only have been two or three years later than theirs. Yet by 1907, the Baronö had of course thoroughly explored his native Belgium, although in the midst of his eulogies of its scenery, he veraciously mentions "the atrocious prehistoric 'pave,' which is certain death to the best springs." He had covered France from the Belgian frontier to Biarritz and from Quimper in Brittany to Nice. He had toured the Pyrenees and motored in Spain and Portugal, although he says of the former country, "if you wish to tour Spain in an automobile—leave your car at the frontier and take the train!" Space does not permit of a list of all the Alpine passes which he had climbed in France, Switzerland and the Tirol, except to say that it includes the Stelvio and the Galibier. He was the first motorist, apparently in about 1899, to make the complete journey from the Northern frontier of Italy right down to Reggio in the "toe," whence he crossed to Sicily and went as far as Marsala. He had toured Corsica thoroughly, and not content with going to Vienna, had pushed on to Buda-Pest, while he had continued the journey to Berlin as far as distant St. Petersburg ("Russia," he says, "is far from possessing any claims to the affection of chauffeurs"). Moreover the adventurous spirit had taken him outside Europe to North Africa where he had journeyed from Flemsen, almost on the borders of Morocco by Algiers to Gabes in Tunisia, and had penetrated into the Sahara as far as Ghardaia.

Gt. Britain—and the Balearic Isles.

Finally I should not omit to mention that de Crawbez had toured extensively in England, Scotland and Wales, and his remarks on the subject are most intriguing. He is enthusiastic about the scenery, and on the subject of road conditions he says:—"One must distinguish between the 'main roads' (sic. in the original French) and the 'lanes' (sic), which are often hard to distinguish one from the other. . . . Unless one knows the neighbourhood very well, one should never venture into the 'lanes,' on any pretext, or one will never get out again! It is all the more difficult to find one's way in the 'lanes' because they are bordered with high hedges, which make them a veritable labyrinth."

In the course of his introduction the Baron mentions the Balearic Islands, and remarks, "A visit to the island of Majorca 'S'impose' (my powers of translation have deserted me there) because of its beauty and the mildness of the climate. It is useless to take your car." Now here I beg most firmly to disagree with the Baron. I have just returned from a visit to Majorca, and, partly on de Crawbez' advice, I did not take my car. But I soon found that a motor was as necessary there as anywhere, and proceeded to hire one. How many of my readers, incidentally, know that until quite recently, they built a car, called a Loryc in Majorca?

A "Targo-Florio" Course at Majorca!

Motoring in the island, however, is very good indeed, even if the roads are rough in places, by English or French standards. They are to a great extent mountainous, and the small number of cars on the road gives one a delightful sense of freedom, such as is beginning to disappear nowadays even in France. Incidentally I sketched out for my own delectation a delightful "Targa Florio" course in the island, 75 miles to the circuit, involving a wonderful series of mountain roads. My intinerary, for the benefit of these who know the island, is Palma, Andraitx, Banalbufar, Coll de Clacet, Miramar, Deya Soller, Coll de Soller, Palma. The roads would need improving in places, but perhaps one day we shall have a Majorcan Vincenzo Florio capable of bringing some such project to frution.

Those G.P. Regulations.

The projected rules for the Grands Prix of 1934 have caused quite a flutter in the dovecot, and while I am all in favour of having some rule which will interest manufacturers sufficiently for us to have a proper Grand Prix again, with cars built specially for it, instead of being modified production models, I do think that a weight limit of 750 kilos has got remarkably little to recommend it. In the first place the great drawback to a weight limit at all is that it tempts designers to cut down essential parts of the car in order to lighten it, until the machine is definitely unsafe. Surely no one has forgotten the terrible lesson of Paris-Madrid which was really the outcome of building racing cars to a maximum weight limit. If, however, in spite of this, one was going to have a maximum weight limit, surely 750 kilos is much too high. In this respect one may recall what was done nearly 30 years ago. In 1903 M. Darracq succeeded in putting into a car weighing 650 kilos complete (or 100 kilos less than the proposed 1934 racers) a 4-cylinder engine of 130 x 140 mm. bore and stroke (7,433 c.c.); while Louis Renault on a car of his own construction, with a slightly smaller engine (124 x 130 mm.), *SIDESLIPS—continued.*

built the same year, is said to have covered a timed stretch during the Paris-Madrid race at nearly 90 m.p.h. A minimum area of 850 x 250 mm. at the level of the driver's seat, also required for 1934, will of course necessitate far less wind resistance than was offered by the unstreamlined " voitures legères " of 1903. and altogether, unless little or no progress has been made in the last thirty years, it seems certain that manufacturers could easily build racing cars for 1934 which would be potentially faster than road conditions would ever allow. In other words one might as well have no restrictions at all.

The "Formule Libre."

The whole question of rules for motor racing is, however, a terribly difficult one, as will be realised at once if one merely looks back at what has happened in the past. To begin with of course, when the great question was whether any sort of motor car would work at all, the " formule libre " met the case excellently. But by 1902 the A.C.F. had come to the conclusion that racing cars were becoming too powerful and introduced the maximum weight limit of 1,000 kilos—which stung Panhard et Levassor into bringing out a 70 h.p. model to replace the old " Forty " !

Fuel Consumption and Capacity Limits.

This rule lasted until 1906, and in 1907 was replaced by a petrol consumption limit, obviously the only sensible rule technically, but one which is naturally universally unpopular at all times and in all places. In 1908 it gave way to the limited bore rule, which lasted on for the Coupe de l'Auto Voiturette race until it produced the V-twin Lion Peugeot with dimensions of 80 x 280 mm. and a bonnet which the driver had to look round the side of ! These sort of excesses brought the consumption rule back again for the 1913 Grand Prix ; but in the meantime the voiturettes had shown the way with their capacity limit of 3 litres—the Delage engine in " Handy-Andy " illustrated in MOTOR SPORT last month was one of them—and in 1914 this limit, at 4½ litres, was introduced for the Grand Prix. It was destined to last on, reduced first to 3 litres, then to 2, finally to 1,500 c.c., until 1927 ; and then it fizzled out, with the result that after one attempt at the unpopular consumption limit again, the A.I.A.C.R. fell back on the uninteresting —technically—" formule libre." What to do now is a baffling question. M. Delage, I understand, favours a large minimum frontal area ; but one cannot but remember with horror these unfortunate motors surmounted with a huge sandwich board which ran in the 1907 Tourist Trophy. However, M. Delage's idea certainly has much to recommend it from the technical point of view—always supposing of course that the authorities persist in refusing to adopt my maximum engine weight—minimum chassis weight formula !

The Dubonnet to be raced.

I suppose the Dubonnet car was probably the most interesting feature of novelty for 1933, and the news that this car will be seen in races next year has given me quite a hell of a kick. Andre Dubonnet's use of a Hispano-Suiza engine is not at all surprising for he has considerable experience of this machinery.

Has anyone Seen ?

Some people I expect remember the delightful Boulogne chassis with a special streamlined 4-seater body built by the Nieuport Aviation Company with which he ran fifth in the 1924 Targa Florio. Incidentally this car used to be in London until a year or two ago and may be still for all I know, although I have not seen it about lately.

Driver-Manufacturer . . . .

The case of Dubonnet (that's a joke) has set me thinking of other famous drivers who have afterwards become motor manufacturers. Apart from those who have achieved their great racing successes on cars of their own construction, I suppose that the most noteworthy is Vincenzo Lancia. One might say that from 1904 to 1908, Lancia, as the leader of the Fiat team was more or less the Nuvolari of his day, and it is rather curious that the cars bearing his own name, although universally popular as sports models, have never really been associated with serious racing. His great team-mate Felice Nazzaro of course also took to building cars of his own, and although not so successful commercially as Lancia, he did build racing cars and won the Targa Florio on one in 1914.

. . . . and some others.

Then of course there were the three famous Panhard drivers of the early days, Charron, Girardot and Voigt who built the C.G.V. car, and possibly were the first to use the straight-eight engine. Under the name of Charron alone the car had a considerable commercial success before the War—there used to be a lot about and one felt rather knowledgable when one could distinguish a Charron at a glance from a Renault. Brasier, too, made his name as a member of the Mors team, and then in collaboration with Georges Richard proceeded to build perhaps the most successful racing cars there have ever been, which won the Gordon Bennett Cup in 1904 and 1905. There are probably a lot more names which do not come to my mind at the moment, but if Dubonnet gains the racing achievements of a Brasier and the commercial success of a Lancia he will not do too badly.

Majorcan Misunderstanding.

I stopped the car in the Majorcan village, and removing my hat, in order to appear polished and unconcerned, adopting my best Spanish accent, in order to disguise the paucity of my vocabulary, I enquired of a local inhabitant " To Palma ? " " No," he replied in a tone of considerable astonishment. This rather annoyed me, as I saw no reason why he should be surprised at my being on the wrong road in one of these confounded villages, which I found about as much like labyrinths as de Crawbez did the lanes of England, and which boasted nothing in the way of a signpost. However I only said, more politely than ever, " Where then ? " " Nowhere," replied the local, looking at me as if I was a specimen in the Zoo. This was more annoying than ever, as I was sure I was on a main road and not a local cart-track. I decided to prevaricate, and after momentary thought produced with confidence :—" Is it not possible to go thus to Palma ? " " But, senor," replied the local, " I assure you I do not want a lift anywhere."

THE 1932 RECORD BREAKING SEASON (continued from page 124).

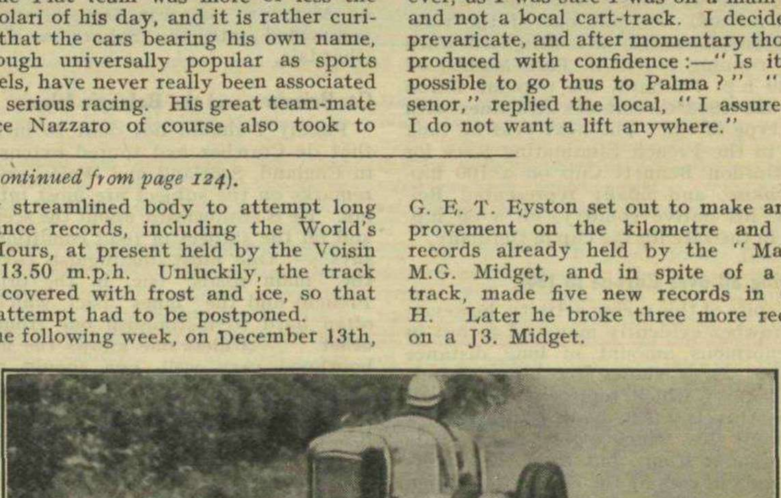
bringing up the total of M.G. records in Class H to 13.

Brooklands closed for winter repairs, but on the same day that Hall was spinning his rear wheels as he got away down the Railway Straight at Brooklands, the Hungarian Motor Club held their annual record-meeting at Tat. But only one competitor was successful in his object, the irrepressible de Strasser Silton, who raised his own standing mile record in Class I to 59.89 m.p.h.

Montlhéry Again.

In spite of the lateness of the year, with long nights and short days, plans were on foot for several attempts on long distance records at Montlhéry, but the first of these, as reported elsewhere in this issue, had disastrous results, for the Italian driver Ruggeri was killed while practising on the 16 cylinder Maserati. Then the 8 cylinder Delage sports chassis, which had made some records earlier in the year, was brought out with a new aero-dynamically streamlined body to attempt long distance records, including the World's 24 Hours, at present held by the Voisin at 113.50 m.p.h. Unluckily, the track was covered with frost and ice, so that the attempt had to be postponed.

The following week, on December 13th, G. E. T. Eyston set out to make an improvement on the kilometre and mile records already held by the " Magic " M.G. Midget, and in spite of a wet track, made five new records in Class H. Later he broke three more records on a J3. Midget.



" R. G. J. Nash on the Frazer-Nash Terror, who proceeded to demonstrate how this famous little car could surmount the Test Hill."

Club News

THE N.W. LONDON MOTOR CLUB.

THE current issue of the "Gazette" issued by the N.W. London Club contains among other interesting news, advance details of the Annual Dinner. This function will take place at the Criterion Restaurant, and as last year, all arrangements are in the capable hands of Mr. Harold Davies.

The Annual General Meeting will be held at the Talbot Restaurant, London Wall, E.C.2, on Thursday, 26th January, 1933 at 8 p.m. Any member who wishes to include an item on the agenda must send same to the Hon. Secretary, Mr. J. C. Lowe, at "Elmleigh," Tenterden Grove, Hendon, N.W.4, before Wednesday, January 18th 1933.

The Club is going stronger than ever. The London-Gloucester Trial entries were astonishingly heavy, and many had to be turned away, in order to avoid congestion at the foot of the hills.

THE SPORTING OWNER DRIVERS' CLUB.

While Clubs are sometimes open to criticism in that their activities are principally confined to the social order, this complaint cannot be made of the Sporting Owner Drivers' Club. The aim of the Club is to provide facilities for those interested in the sport of motoring, whether it be with old or new cars, sports models or ancient family vehicles, to compete in Trials and to this end a series of Half Day Trials are arranged throughout the year.

But the most important event of the year is the annual Night Trial. Starting on a Saturday evening, or late afternoon, in the Summer, several hills are "taken in" before dark, when the second half of the Trial begins. This consists of a run down to some really famous gradient, which is climbed in the dark, and after this, all the competitors have a kind of picnic breakfast somewhere in the vicinity before starting the run back to a real breakfast at the finish. The 1932 Night Trial was run to Nailsworth Ladder near Stroud under really wonderful weather conditions, and produced an amazingly enthusiastic entry.

The Secretary, Mr. J. C. Thorowgood, The Wood, Crowthorne, Berks, or the Trials Secretary, Mr. D. B. Payne, 150, Friar Street, Reading, will be very pleased to forward any particulars concerning the Club, which may be required by anyone who is really keen and enthusiastic about motoring, and who wishes to meet and compete against others of the same mind.

KENT & SUSSEX LIGHT CAR CLUB

Mr. H. V. Warren, who has so ably managed the affairs of the Club for some time, has once again been re-elected to the Secretaryship. Anyone who has attended the efficiently run Speed Trials held by the Club at Lewes will agree that it would be impossible to find anyone more suited to fill the post.

The awards gained by members during the past year have now been posted, and we are informed that the usual Speed Trials on the Race Hill, Lewes, will take place next year on the following dates: May 13th, June 24th, September 9th.

THE BERKHAMPSTEAD & DISTRICT M.C.C.

The annual Dinner and Dance took place last month at the Kings Arms Hotel, Berkhampstead, and was attended by 130 members and guests. Professor A. M. Low was in the chair, and the toast of The Club was proposed by Mr. P. R. Clarke, the Vice Chairman of the Berkhampstead Club. Mr. A. Pane, joint Hon. Sec., replied on behalf of the Club. After speeches had been made by various people well known in the motoring world, the prizes were presented by Mrs. Armand Blackley.

Dancing followed until 2 a.m.

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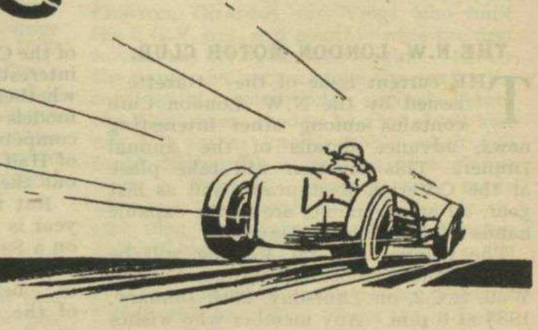
Rumblings

BOANERGES



Good News About Shelsley.

When a hill climbing record has been keenly contested for the past 27 years, it seems a thousand pities that the course should be altered and new figures made. I was very relieved to hear from Leslie Wilson, the secretary of the Midland Automobile Club, and to whose efforts the success of the annual hill-climb is largely due, that the length of Shelsley will remain unchanged for next year. The Committee were inundated with requests from competitors and spectators that no alteration should be made, and it looks as though Von Stuck's record will be subject to a fierce onslaught next year.

Two other points connected with the event have been modified. First of all, the Amateur climb in September (it's not certain yet whether it will be on the 23rd or the 30th) has been changed to the Autumn Open. Incidentally, the open event takes place on May 27th. Then the spectator's accommodation is being altered. The Members' Enclosure is to be moved to a spot about 30 yards before the first bend, and is to be fitted with more comfortable seating arrangements. The old Members' Enclosure will be used as a special stand for the public at an extra charge. Finally, the footpaths to the top of the hill will be widened, so that congestion will at any rate be reduced.

Enterprise of this sort is what is wanted.

"The Terror" Changes Hands.

Cars are changing hands at this time of year, and R. G. J. Nash has sold the "Terror" to A. A. Arnold. He has bought the "Slug," and is moving his garage to Brooklands so will have plenty to do this winter. The "Slug" weighs a ton, so one cannot expect the same sort of performance as the Terror had, but it might be amusing for Round the Mountain races, or Lewes Speed Trials.

A New Use for Brooklands. . . .

As Mr. Bradley announced at the B.A.R.C. dinner, there is going to be a bicycle race at Brooklands next year. The meeting is being organised by the Charlotteville Cycling Club, whose headquarters are near Guildford, and I understand that a full day's sport is being arranged, including a Mountain race. Chronograph Villa corner should provide some fun.

. . . and a Mountain Meeting.

I am glad to hear that a meeting composed entirely of races round the Mountain Course at Brooklands is being arranged. A suggestion that this should be held was made in Motor Sport last July, with the further idea that the races should be run in classes and the whole affair be called a Championship Meeting. Scratch racing is what we want, after all, and the reward of a championship for the winner in each class should make the meeting more attractive from both the competitors' and spectators' points of view.

Esprit de Corps.

I am sorry I missed the J.C.C. Annual Dinner-Dance at the Connaught Rooms last month. The London-Gloucester trial was my job for that evening, but a colleague who was present at the function tells me he has never seen so much enthusiasm shown by members of a club before. Probably the speech of the evening was made by Lt. Col. J. T. Moore-Brabazon, who had an amusing word to say about many well known people in the motoring world. Professor A. M. Low, who was in the chair, entertained everyone with anecdotes, while L. F. Dyer, the Secretary and prime mover of the Club, gave a very fine speech in announcing the New Race for next year.

That 120 m.p.h. Racing Car.

My enquiries for racing cars last month brought in some interesting replies. One reader wanted to dispose of Sir Malcolm Campbell's 350 h.p. Sunbeam, on which he took the World's Land Speed Record at Pendine in 1924. The same man also possesses the green two-seater Eldridge Special, a photograph of which appears on the next page. Strangely enough, only a week or so before I had learnt that the engine of the single-seater car was to be found at Booth and Croft's garage in Basil Mews, S.W.1, so I went along to see it.

In its original form the Eldridge Special consisted of a 1,500 c.c. side-by-side Anzani engine, supercharged, and fitted with a roller-bearing crankshaft in an Amilcar chassis. During 1925 a large number of records were captured by it, the flying kilometre at 113.2 m.p.h. and the 5 kilometre at 109.8, also the flying mile and 5 miles. Later that year the 5 kilometres was raised by the same car to 121.5 m.p.h., and 10 mile and 50 kilometres records were also taken.

RUMBLINGS—continued.

The two-seater appeared at Monza and San Sebastian, but clutch trouble was experienced on both occasions. It was also entered in the 200 Miles Race. During the winter, Eldridge decided to improve the cars by fitting overhead camshaft heads, at that time all the rage, and in 1926 they were taken over to Indianapolis and were driven there by Hawkes and Eldridge. Their performance was disappointing, so Eldridge bought a Miller on which he was later very successful at Montlhéry. Hawkes drove one of the cars in the 1926 200 Miles Race, but got no further than running into Eyston at the beginning of the race.

After some years of varied adventures, the single seater came into the hands of Booth and Croft and by dint of much hard work, all the teething troubles of the O.H.C. engine, which had never really been tackled before, seem to have been overcome. The crank case and block of the Anzani engine were retained, and on those the Eldridge head was mounted. The way in which the alterations were carried out was most ingenious. The valves were arranged at 90°, and the valve springs worked in chambers bored out in the head. The spring caps were secured to the valves by split collars, and were wide enough to bear against the sides of the spring chambers. They carried a roller running on a pin mounted on the top side, and this roller was directly acted on by the cams of the camshaft. All the side-thrust was taken by the spring caps or pistons, and the design was one which promised a long life to the working parts. The two camshafts were driven by a single chain at the rear end, with a a jockey pulley to take up the slack.

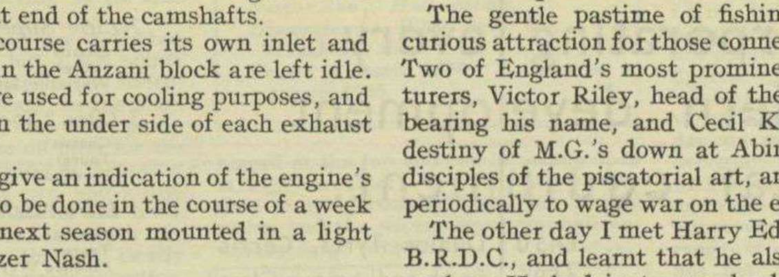
The engine was fitted for dual ignition, the two plugs being arranged beside one another between the valves. As originally arranged, these was no room for two magnetos alongside the engine, and a coil was used to fire one set of plugs. In its latest form two magnetos are fitted driven off the front end of the camshafts.

The O.H.C. head of course carries its own inlet and exhaust ports, so those in the Anzani block are left idle. In the Eldridge these are used for cooling purposes, and a water jet is directed on the under side of each exhaust port.

Only a bench test can give an indication of the engine's capabilities, and this is to be done in the course of a week or so. It is to appear next season mounted in a light chassis, possibly a Frazer Nash.

A 1922 G.P. Racer.

Another interesting racing car I saw there was a 2 litre Sunbeam, which was driven by Lee Guinness in the 1922 French Grand Prix at Strasbourg. It is still capable of over 90 m.p.h. and is regularly used by its owner on 400 mile runs to Scotland. The four cylinder engine had the fantastic stroke of 130 mm. with a bore of 68, and the valves were operated in a somewhat similar way to those on the Eldridge, the camshafts being gear-driven at the front end. The block is a peculiar shape at the bottom of the cylinder bores, in order to clear the connecting rods at their position of greatest angularity. The block, incidentally, was slightly off-set.



The two-seater Eldridge Special described in an accompanying paragraph.

The New J.C.C. Race.

There seems no reason why the new race for this year should not be a complete success. On another page there is a full description of it, with an imaginative aerial view of the race in progress by R. A. Nockolds, whose work has appeared in MOTOR SPORT for many years. The only possible criticism I can see is that the middle class, which will presumably be composed of cars considerably larger than the 750's, will not be sufficiently penalised by the corner shown in this drawing. No doubt a cure could be found for this by an additional S bend after the first curve. Anyway, the idea is a great one, and the fact that the cars will be running level, without a time handicap, is enough to ensure its success.

Hats off to the J.C.C.!

The Brighton Grand Prix?

During the Brighton Speed Trials last summer I heard several people remark that a very fine road race could be held by using both the Madeira Drive and the Marine Parade. A similar thought was evidently in C. L. Clayton's head, for I now hear that the Brighton & Hove Club are considering the possibilities of such a race. Naturally nothing can be done for 1933, as all the International Calendar is allotted, but if all goes well there may be a race in 1934. Meanwhile, a date has been fixed for the Speed Trials on the Madeira Drive about the same time as last year.

In the Steps of Isaak Walton.

The gentle pastime of fishing seems to exercise a curious attraction for those connected with motor-racing. Two of England's most prominent sports car manufacturers, Victor Riley, head of the famous Coventry firm bearing his name, and Cecil Kimber, who guides the destiny of M.G.'s down at Abingdon, are both ardent disciples of the piscatorial art, and depart into the wilds periodically to wage war on the elusive trout.

The other day I met Harry Edwards, Secretary of the B.R.D.C., and learnt that he also has aspirations as an angler. He had just come back from a long week-end fishing in the country, and I tactlessly enquired as to the results of his expedition. But Edwards is not of the usual breed of fishermen, who automatically stretch their arms to their widest extent when you say "What luck?"

Oh, no. He just sneezed and blew his nose. "Not a single bite," he replied, "the only thing I caught was a beastly cold."

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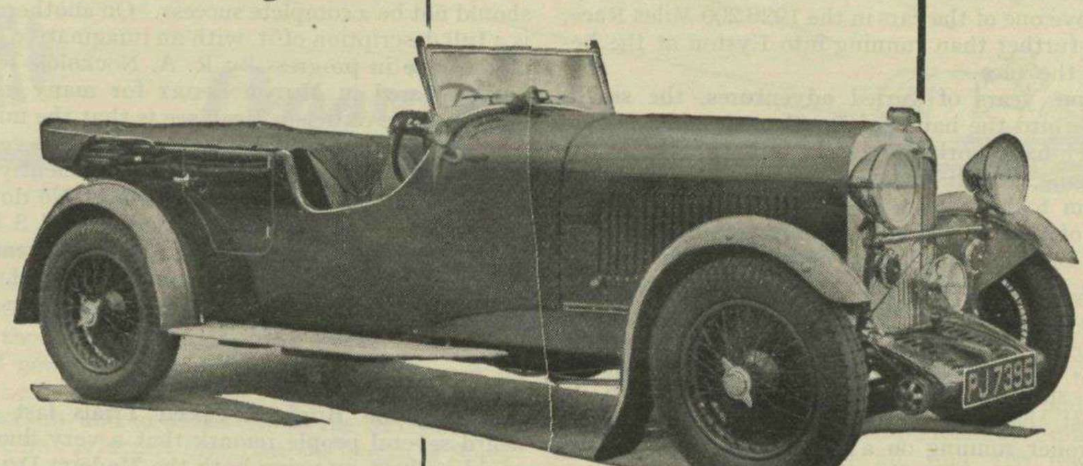

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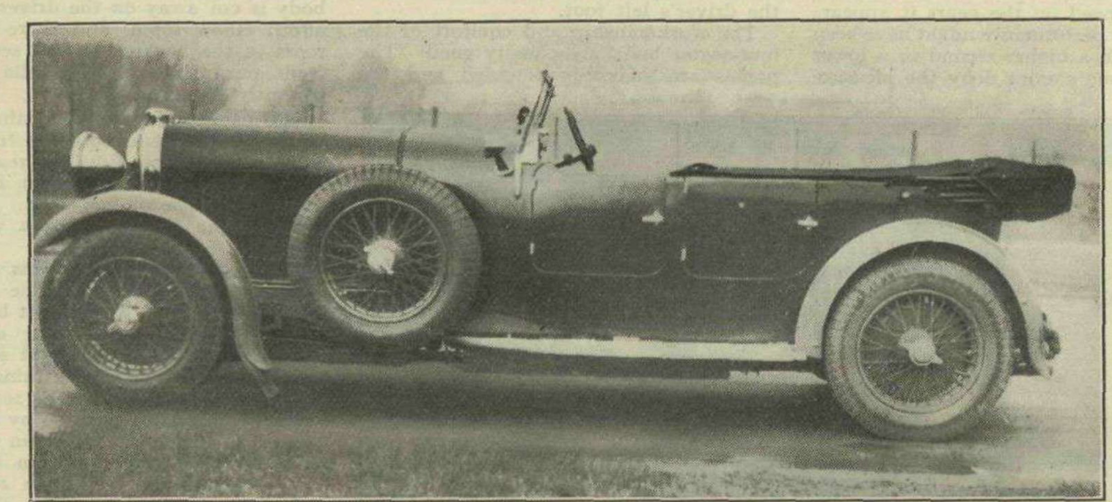
THE 16-80 h.p. LAGONDA



[*Motor Sport Photograph*

A DE-LUXE CAR WITH EXCELLENT PERFORMANCE.

FINE feathers, we are told, do not necessarily make a fine bird, but the behaviour of the two litre Lagonda fitted with the new "Special Six" engine is in no way inferior to its distinguished appearance. Fitted with a comfortable four-seater body, this car reaches 78 miles per hour without fuss or noise, and its long wearing qualities can be taken for granted. The dropped chassis allows a low-slung body to be fitted without recourse to a raised propellor shaft or to footwells, and the neat design of radiator shutters, the large lamps and the symmetrically disposed dual Lucas horns combine to make its front elevation as satisfying as its side view.

The engine and chassis are described elsewhere in this issue, but a few points of practical interest must be added. Maintenance should be easy, as the magneto, plugs, carburettors and water pump are very accessible. The oil filter for the engine is situated in the midst of the rocker cover, and is of sensible size, and a dipstick on the near side shows the level. An Auto-Kleen oil filter, in which the oil is forced edgewise through closely fitting brass discs, rarely needs attention, since the elements are partly rotated each time the clutch-pedal is fully depressed, removing any foreign matter which might have been separated from the lubricant. The racing filler-caps on radiator and petrol tank are very convenient.

The hydraulic jack, the grease-gun and a force-feed oil can are all carried in clips on the dash, also the fuses and cut-out. A very complete set of tools is carried in a roll permanently fixed to a wooden backing. This slips into place inside the scuttle by the side of the front passenger. The Rudge wheel hammer is carried in a special pocket on the driver's side.

The driving position of the 16-80 could scarcely be bettered. Hand and foot controls could be operated without stretching and the steering column, which was well-raked, brought the wheel right into one's lap. The single-pane windscreen is hinged at the top and can be swung open in foggy weather. A Bosch wiper with dual arms is mounted below the line of vision and the wipers move through unusually large arcs.

Brief Specification.

Engine : 6 *cylinder.* 65 *mm. and* 100 *mm. bore and stroke. Capacity* 1,991 *c.c. R.A.C. Rating* 15.7 *h.p. O.H.V. push rods. Two S.U. carburettors. Magneto ignition.*

Gear-box : 4 *speeds and reverse. Right hand change. Ratios with* 4.4 *axle ratio,* 16.21, 10.13, 6.01 *and* 4.4 *to* 1.

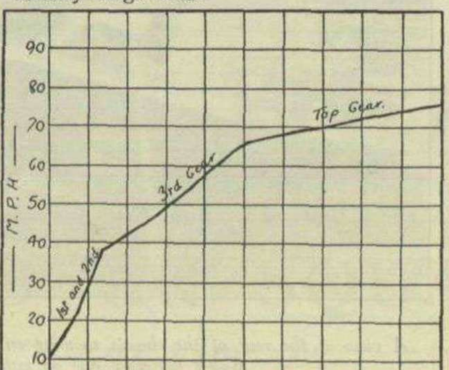
Rear Axle. Special bevel.

Brakes : Rod operated front, cable rear. Hand brake on independent shoes.

Suspension : Half-elliptic.

Dimensions : Wheel base 10*ft. Track* 4*ft.* 8*in.*

Price : Chassis £450 *; Four-seater tourer* £595.



Acceleration Chart of the 16-80 h.p. Lagonda.

In traffic the steering felt rather low-geared, but proved its worth on fast main roads, where an accurate course could be held for long periods without any effort. After a corner a good caster action helps to centralise the front wheels. The low centre of gravity brought about by the dropped frame is very valuable and fast bends can be taken without slackening of speed or any rolling sensation. Suspension is good at all speeds, and does not call for adjustment of shock-absorbers, partly because of the unusually large section (5.5. inches) of the tyres.

The acceleration of the Lagonda, as the chart reveals, is very satisfactory. The engine can be run safely up to 5,000 r.p.m., but as the average owner would not generally take it above 4,500, we did not go above this figure in obtaining the figures. There was a slight hesitation when the accelerator was first depressed, which was atributed to the bitterly cold day on which the car was tested. To overcome this, the later cars are fitted with warm air intakes to the carburettors, and on a short test of a saloon so fitted, improvement was noted throughout the range of throttle opening. Flexibility has not been sacrificed to high revs., and with ignition retarded the car runs happily down to 10 m.p.h. in traffic.

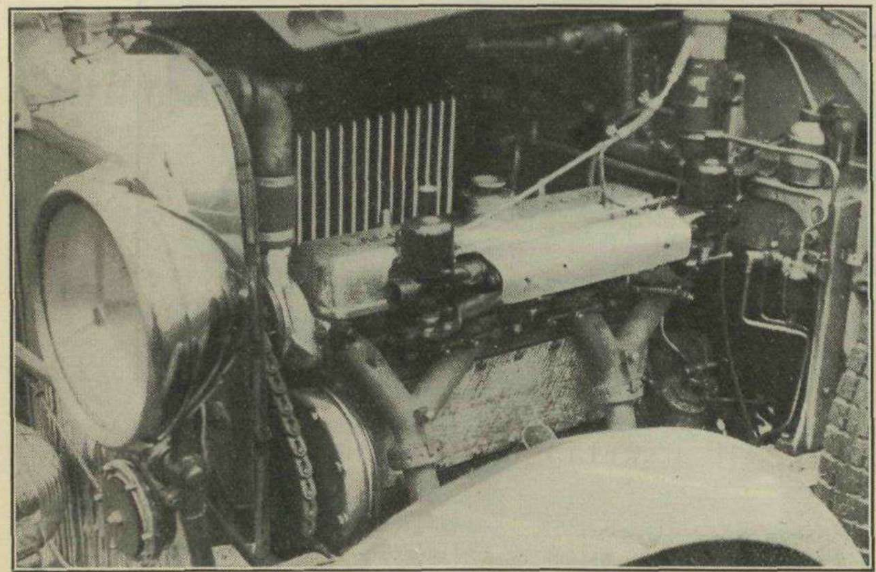
The engine is mounted on rubber at four points and is fitted with a vibration damper. It runs very smoothly and is free from periods, and the exhaust noise is negligible.

The clutch and gears are light, and a powerful clutch-stop is fitted. When the pedal is fully depressed the change is almost instantaneous, even at high revs.

The change from third to top was almost too quick for comfort at low speeds, but this could have been overcome by easing back the clutch stop. Road speeds at 4,500 are :—second gear 38 m.p.h., third gear 67, while the maximum speed on the level was 78 m.p.h. On favourable gradients we frequently exceeded 80 m.p.h., a practise which is not likely to have any ill effects as the engine is only

THE 16-80 LAGONDA—continued.

running at 4,000 r.p.m. at that speed. From the speed on the gears it appears that a better performance might have been possible with a higher second or a lower third, but one cannot deny the pleasure of taking a main road hill at 65 in third, and in any case better acceleration, on the rare occasions when it is wanted, could have been achieved by going up to 5,000 r.p.m.



A near side view of the engine of the 16-80 *h.p. Lagonda.*

The indirect gears are all of the straight-tooth sliding pinion variety, but make nothing more than a pleasant hum. Top gear is "inside back" instead of "outside back" as is more usual, but no difficulty was found in getting accustomed to the change.

The brakes were excellent, and the car could be brought to rest in 51 feet from 40 m.p.h. without difficulty. There is no tendency to leave a straight course, nor do the wheels lock when the pedal is violently depressed in emergency. The hand lever applies separate shoes in the rear drums.

The ratchet is only engaged when the knob at the top of the lever is depressed, and the pawl frees itself as soon as the lever is pulled back preparatory to releasing it.

The jets in the S.U. carburettors are permanently fixed, and to provide a rich mixture for starting, a Ki-Gass is used. Three strokes on the pump forces petrol through jets into the induction pipe, and an easy start is assured on the coldest of mornings.

The cruising speed of the 16-80 is high, and one finds oneself maintaining a steady 65-70 without effort. The powerful Lucas P80 lamps allow this speed to be maintained at night, and the centrally disposed auxiliary light, which is inclined to the left and which is used instead of the main lamps when dimming is required, gives a fan-shaped beam which cannot interfere with other road-users, and which should be particularly efficacious in fog. The foot-controlled switch is mounted on the ramp within immediate reach of the driver's left foot.

The workmanship and comfort of the four-seater body are equally good. The panels are smoothly rounded and the cellulose quite glassy in its high finish. Cycle-type mudguards moving with the wheels were fitted to the car we tested, and as they are fastened to a number of points on the brake back-plate, and also to a bracket beyond the steering pivot, they should be quite as secure as the ordinary sports pattern. They afford good protection, and make it easy to inspect the engine without coming into contact with what is always a muddy part of the car.

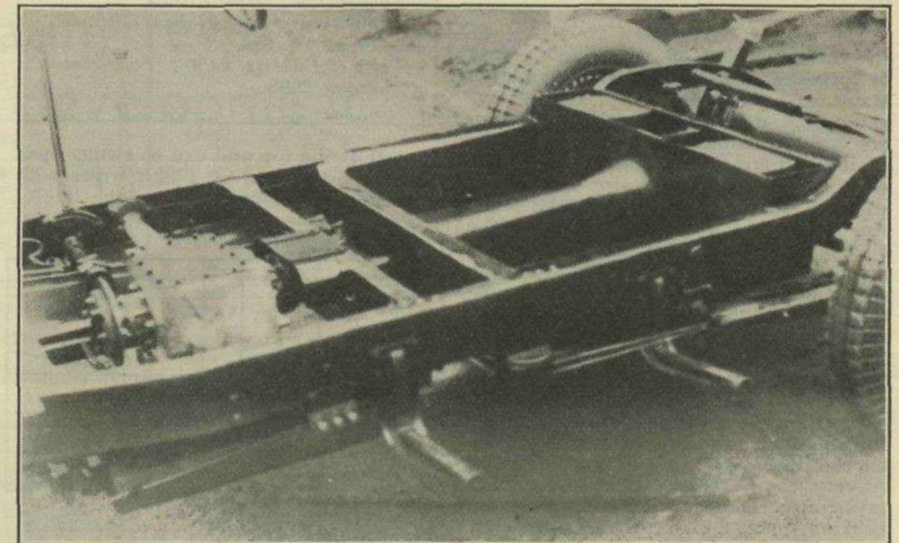
The independent front seats have pneumatic cushions and squabs, and give excellent support to legs and back. The body is cut away on the driver's side to afford elbow room, and there is ample room in the back and front seats. The front ones slide on Leverolls and are instantly adjusted.

The back seats are as comfortable as the front ones, and with the front seats in their normal position, the rear passengers are able to stretch out their legs without the use of foot-wells. A centre arm-rest can be folded back when not required.

The hood and side curtains are proof against drafts and rain. The side curtains are provided with a soft bag which protects them against being scratched, and a flap for the hood light serves the same purpose. The side-curtains are kept in a locker behind the rear seat squab, which is retained in position by a sensible catch. Considerable attention has been paid to preventing drafts in the front compartment, and the space round the pedals is sealed by fabric flaps, also by the thick rubber mat, and laced sleeves surround the gear and brake levers. The floor boards are bolted down, but are easily removed if the clutch should require attention.

The two litre "Special Six" pulls its full sized body without effort and puts up a performance which a few years ago could not have been obtained at less than double the price. Its engine runs at a reasonable speed and altogether it is the sort of car the same owner would run for the majority of its nine years of guaranteed life.

In spite of the rapid improvement in the comfort and performance of mass-produced cars, the hand-made vehicle, such as the 16/80 Lagonda, will always command a ready market among discriminating motorists. It will give its owner those finer shades and subtleties of control which go to make the enjoyment of real motoring.



[*Motor Sport Photograph*

A view of the rear of the chassis showing on the left the clutch stop, and on the right, two 6-volt batteries, one on either side of the propellor shaft.

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FAST TOURING DE LUXE

FIVE LAGONDA MODELS IN 1933 PROGRAMME.

ENGLISH roads and English taste call for a type of sports car which can only be supplied in the British Isles. It needs to be fast and reliable, not too heavy, and quiet-running with just a suggestion of underlying power. Lastly it must have good lines, achieved without having recourse to eccentric mudguards, chromium plated bonnets, or colour schemes which are only tolerable in a French Riviera setting. Since the introduction of the early model two-litre in 1925, Lagonda cars have been designed with these ideals in view.

Built primarily to suit the British motorist, their success on the Continent has been considerable, helped not a little by their powerful headlamps, good springs and full equipment. The achievements of Lord de Clifford and others in Monte Carlo Rallies and Couper's Coupe des Alpes in the last Alpine Trial, have demonstrated the ability of Lagonda cars to stand up to the most strenuous conditions of travel.

For the coming season two chassis types are listed, the two litre on a 10ft. wheelbase, and the three litre which is nine inches longer. The two litre chassis is of sound and straightforward design, the side members being upswept from the rear of the engine forward to the dumb-irons in order to lower the c.g. in front, and swept over the rear axle in the usual way. The chassis is braced by numerous cross members of pressed and tubular formation, the two immediately behind the gear box together with the one in front of it dealing effectively with the twisting stresses which are inseparable from high-speed motoring.

Two engines are available in the two litre chassis, the older 4 cylinder overhead camshaft unit, which can also be obtained in supercharged form, and the 6 cylinder push-rod engine, which is used in the car road-tested in this issue of MOTOR SPORT.

The cylinder dimensions of the four cylinder are 72 mm. by 120 mm., giving a total capacity of 1954c.c. The annual tax is £13. The cylinder block and crankcase are cast in one, and the detachable head carries two overhead valves per cylinder in hemispherical combustion chambers. The sparking plug is placed vertically between the two valves. The chain-driven overhead camshaft operates the valves through rockers, and the clearances are adjusted by rotating the eccentric rocker pins. The head can be detached without upsetting the valve timing.

Inva-Strut split skirt pistons with hollow gudgeon pins and duralumin connecting rods keep down the reciprocating weight and the five bearing crankshaft is counterbalanced. Coil ignition is employed and the single S.U. carburettor is carried on the near side and supplied by Autovac from the 14 gallon rear tank. A fan and a water-impellor assist the thermo-syphon cooling system, and the chromium plated radiator shutters, which are thermostatically controlled, keep the engine at its maximum efficiency.

Two gallons of oil are carried in the sump and supplies are forced to the hollow crankshaft and other important points. Suction and pressure filters are incorporated. The crankcase can be drained by turning an easily-reached valve, and the chassis grease-points are grouped for easy maintenance.

The engine needs little modification to take the supercharger, which is mounted vertically between the engine and the crankshaft-driven dynamo. The carburettor is bolted directly on to the blower which is of Zoller manufacture, with various Lagonda modifications. A metal pipe flexibly jointed to the blower carries the mixture to the induction port on the near side of the engine, and a blow-off valve prevents damage in the event of a back-fire. A magneto replaces the coil, and a petrol pump driven from one of the camshafts is carried at the rear of the engine. Air scoops help to keep the camshafts cool.

The two-litre supercharged Lagonda was one of the earliest examples of supercharging successfully applied to touring cars, and a road test of one of these models appeared in MOTOR SPORT for October, 1930.

The six-cylinder engine was introduced last summer. The cylinders have bore and stroke of 65 and 100 mm. respectively, giving a total capacity of 1,991 c.c. The tax is £16. The detachable cylinder head carries vertical overhead valves, push-rod operated adjustment being made by a screw and lock-nut on each rocker. The combustion chambers are machined throughout. The sparking plugs are carried in an inclined position on the off-side of the engine. The exhaust gases are led away through a pair of two-branched exhaust pipes.

The magneto and dynamo are driven in tandem, and a belt-driven fan and water impellor supplement the thermo-syphon cooling. A Petrolift supplies fuel to the carburettors.

The four-bearing crankshaft has a vibration damper at its front end. It is drilled and is lubricated from a pressure pump, and the system embodies the usual pressure and suction filters.

The transmission layout is identical on all the 2 litre models. A single plate fabric-faced clutch mounted on a steel flywheel transmits the drive to a flexibly mounted gear-box which of course is a separate unit. All gearshafts are mounted on ball and roller bearings. The ratios of the four gears differs slightly on the four and the six cylinder models, the second and third in the latter being lower, as the six can run safely up to 5,000 r.p.m. A right-hand gear-lever is standard, and an adjustable clutch stop facilitates quick changes.

The open propellor shaft has two universal joints, and the spiral-bevel final drive is carried in a banjo housing with an aluminium cover plate. The front axle is of H. section special alloy steel, the steering pivots bear on ball-thrust washers while the hubs are carried on adjustable roller bearings.

Semi elliptic springs are fitted back and front. The rear springs are underslung and all are fitted with gaiters.

All cars are equipped with Rudge Whitworth wheels for 31 x 5 Fort Dunlop tyres.

The Lagonda braking system leaves nothing to chance. The foot-brake applies two large front brakes and two sets of shoes at the rear, while the hand-lever operates on an independent set. The rear brakes are cable-operated and are compensated by chain and sprocket gear, and all shafts are carried on self-aligning ball races so that no binding can take place.

(*Continued on page 136.*)

A handsome Saloon of typically English characteristics, the Three-litre Special Lagonda Saloon.

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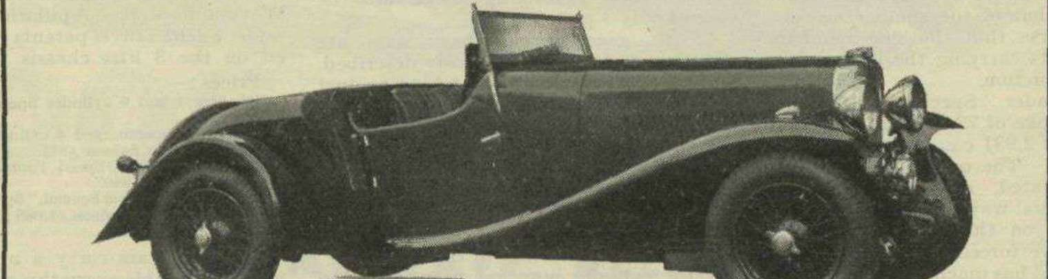

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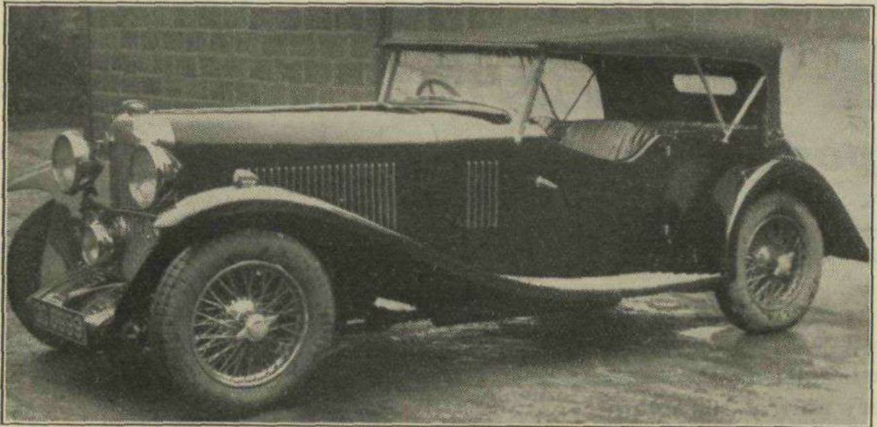
FAST TOURING DE LUXE—continued.

Cam-type steering is fitted, and the column is adjustable for rake.

Lagonda equipment is noticeably generous, particularly with regard to the lighting system. All cars are equipped with Lucas P 80 projectors which give a driving light allowing of the highest speeds in safety, while a centre light inclined to the left of the road gives a safe driving light without any possibility of dazzle. The dashboard equipment is complete and the tools are carried in a special container recessed to carry each individual tool.



[*Motor Sport Photograph*

A special model. The 16.80 h.p. Lagonda chassis fitted with a Vanden Plas open four-seater body.

The chassis layout of the 3 litre cars is similar to that of the smaller models, except of course that the side-members and other parts carrying the load are of heavier construction.

The six-cylinder "Special" engine has a bore and stroke of 72 and 120 mm. and the capacity is 2,931 c.c., with an R.A.C. rating of 19.2. The overhead valves are push-rod operated, and adjustment is made in the usual way by means of screws and lock-nuts on the rockers, and the bearings receive forced lubrication. The detachable head has machined combustion chambers and the plugs are fitted on the off-side.

Two S.U. carburettors, which are protected by Vokes air-cleaners, are carried on the near side, and the petrol pump, which draws its fuel from a 20 gallon tank, is driven from the rear end of the camshaft. This is carried on four bearings and runs submerged in oil. The alloy pistons have hollow gudgeon pins, and the massive crankshaft runs in seven bearings. The dynamo is carried at the front end, and the distributor for the coil ignition system is driven by spiral gearing from the camshaft, and is accessibly mounted on the off-side of the engine.

The lubrication system is similar to that fitted on the smaller models, and the sump holds 3 gallons of oil.

Clutch, gearbox, and back axle are similar to those models already described, but the top gear ratio is 4.1 as against 4.4. on the smaller cars. The Rudge-Whitworth wheels are fitted with 31 by 5.25 Fort Dunlop tyres.

The most luxurious car of the range is the three litre "Special Selector," which is fitted with an 8 speed gear-box manufactured under Maybach patents. The engine is similar to that of the "Special" but the cylinder bore has been increased to 75 mm. bringing up the total capacity to 3,181 c.c.

The Maybach design gives two alternate sets of four gear ratios, a high set, all silent, for effortless touring with a slow running engine, and a low set intended for mountainous districts and other emergency use. A movement of the central gear-lever backwards or forwards determines which set of ratios are in use, ordinary gear-changing being carried out by means of two small levers mounted in the centre of the steering wheel. The centre lever also engages reverse gear, and since the selecting levers control four gears it follows that there are also four reverse ratios.

The ratios are pre-selected by the steering-wheel levers and the gears are actually shifted by vacuum cylinders when the accelerator is slightly released. Overrunning clutches prevent the gears from engaging until their speeds are matched, and changes up can be made almost instantaneous by using the clutch and its powerful stop in the normal way. The normal ratios are :—3.66, 5.27, 6.95 and 10.61 to 1 and the low set 6.0, 8.67, 11.6 and 16.54 to 1.

The handsome lines of the Lagonda bodies are proverbial, and have won their owners numerous awards at Concours d'Elegance in England and abroad. They are made throughout at the Staines factory, and embody various interesting points of design which the makers have found useful for long-distance travel.

In addition to the normal Le Mans type four-seaters, special bodies for the supercharged two litre and three litre cars have a neat container built into the back which holds two suitcases, while the tools are arranged in a sunk tray which swings out when the locker is opened. This feature is also found on the panelled Weymann saloons. A pillarless saloon built under Silent Travel patents can be obtained on the 3 litre chassis.

Prices :—

Two litre 4 and 6 cylinder Speed Tourers £595 ; Saloon £695.

Two litre Supercharged 4 cylinder, Speed Tourer £775 ; Weymann Saloon £875.

Three litre Special, Speed Tourer £900 ; Panelled Weymann Saloon £990.

Three litre "Selector Special," Speed Tourer, £975 ; Panelled Weymann Saloon £1,065 ; Pillarless Saloon £1000.

Lagonda Cars carry a nine year guarantee renewable every three years after an inspection of the car has been made. This guarantee is transferable when the car is sold.

THE FRENCH GRAND PRIX FOR THIS YEAR.

For some time the attention of French motorists has been concerned with the venue for the 1933 Grand Prix de l'A.C.F., or as it is usually termed in England, the French Grand Prix. All sorts of suggestions have been considered, and since the race has a monetarily beneficial effect on the locality in which it is held, competition from various parts of France has been keen. A circuit in Auvergne was put forward, then another from Vincennes, and in addition, a scheme was worked out for running the race in the Bois du Bologne, in Paris. All in turn were dismissed, until finally the Club decided that no finer course could be found than the road-cum-track circuit at Linas-Montlhéry.

From the English enthusiasts' point of view, we consider that their choice is ideal. Our experience of the French Grand Prix of 1931, which was held at Montlhéry, gave us the opinion that spectators are able to obtain a better view of the racing at the famous circuit near Paris than on an ordinary road circuit like Le Mans. The reason is, of course, that as Montlhéry is built on private ground, provision has been made for spectators to walk round practically the entire course. When a race is held on public roads it is often impossible for the public to get anywhere near the circuit for long stretches without an uncomfortable cross-country scramble through hedges and over ditches.

Montlhéry is within easy reach of Paris, so that anyone who wants to see a classic road event at not too great an expense should make a note of the date of the French Grand Prix for 1933, June 11th.

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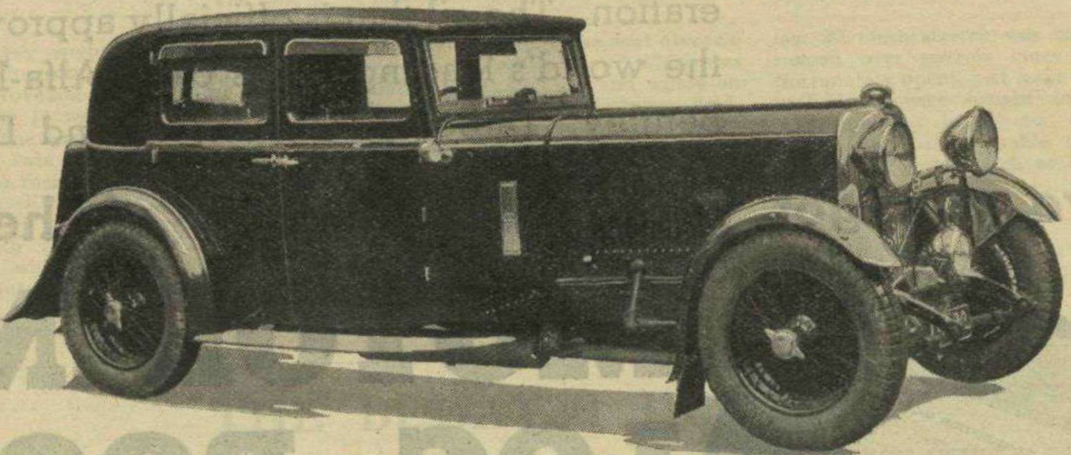

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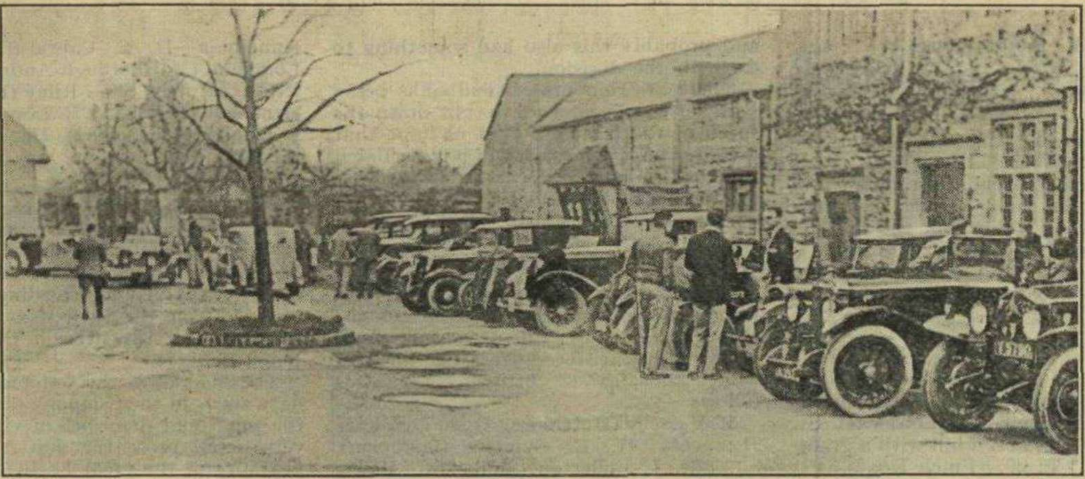
ON THROUGH THE NIGHT . . .



The scene at the finish in the yard of the " Lygon Arms," Broadway. [*Motor Sport photograph*

34 HARDY wights turned out for the Bugatti Club's Night Trial on November 26th, but of these machines only 11 were " Bugs." Starting from " The Spider's Web " on the Watford By-Pass, at 10.30 p.m., competitors made their way by devious lanes and roads to Kop, where a timed hill-climb was held. Fastest time was made by C. Smith (Bugatti 2,261 c.c. S.) in 31.3 secs. while in Class B, for small cars, F. S. Hutchens, the Secretary of the Hornet Club, gained the honours with his Daytona Hornet in 38.3 secs.

On through the night, the next obstacle was a check " by a hay-stack " which was fortunately located by all, and where an acceleration and braking test was held. After this, with much route finding on the part of stiff-fingered passengers, came the observed hills of Stancombe (where an O.M. and Richards-Brown's Chrysler failed), Sheepscombe and Portway, the latter being difficult to find through a slight error in the route card, and causing much congestion of revving Bugattis down cul-de-sac lanes.

The finish was at Broadway, and the last 20 miles stretch was cunningly arranged over narrow lanes with gates (fortunately open). At least two luckless individuals were caught in this trap, " pausing too long " to admire the dawn, and being unable to make up time on the last stretch to the " Lygon Arms."

RESULTS.

Mrs. K. Martin (Wolseley Hornet),

H. S. Nungall (Alvis) and

K. Hutchison (Ford).

THE BUGATTI DINNER.

VISIT OF "THE PATRON" AND M. JEAN BUGATTI.

THE annual dinner of the Bugatti Owners' Club, which was held at Grosvenor House on December 16th, was a tremendous success and showed clearly that the advent of utility motoring has in no way quenched the enthusiasm of sporting car owners. The presence of M. Ettore Bugatti and his son completed the picture, and as one of the speakers said, one felt that without acquiring one of the famous cars, one had not experienced the full thrill of motoring.

The speeches were few and to the point. After " The King " Lord Howe, President of the Club, expressed its gratitude and pleasure at the visit of M. Bugatti and his son and the enthusiasm which was felt in this country for the cars which bore his name. M. Bugatti in reply said that as he did not speak English, he was unable to understand the kind things that were being said about him, but that he and all the drivers associated with Molsheim wished to put on record their admiration for Lord Howe as a sportsman and as the most skilful amateur driver in the racing world. As far as motoring was concerned, he felt much safer behind a team of horses, but was delighted with the enthusiasm shown in this country, which was much greater than in France, in spite of its numerous clubs and race meetings. M. Jean Bugatti followed up his father's speech in English, and made humorous reference to his accident with the four-wheel-drive car at Shelsley this year, where, as he said, he " broke it very fast."

M. Bugatti then presented the numerous awards given on the result of the Club's trials and other events, the Victor Ludorum Cup, given by the Patron himself, being won by Mr. L. G. Bachelier. A suggested addition to the Club's activities next year was a Club run to Molsheim, where M. Jean undertook to organise a hill-climb on the famous Bugatti practise course in the Vosges Mountains.

After dinner we were able to have a chat with M. Bugatti, and learnt that the new 2.8 litre racing cars were well on the way, and would be tested next month. He is also producing another type of car quite unlike anything yet seen, but it was too early to get more details. The 4.9 will only be produced as a touring car, but the four-wheel-drive chassis is being continued for hill-climbs and so forth.

M. Bugatti's interest in race-horses is well-known, but I learnt for the first time that furniture designing is also one of his hobbies. Our next door neighbour had visited Molsheim this year and was getting some very ingenious garden seats which were made of wood but were unusually comfortable. The factory is now experimenting with rail-motor coaches, and tests of these by the P.L.M. are taking place in the near future.

Lord Howe was in excellent form and was looking forward to an interesting racing season. He is driving an Alfa at Le Mans, Spa, and Ulster, in the first two with Sir Henry Birkin, and of course is taking the team of Magnettes to Italy. Beyond the fact that he is driving the world's finest racing car in Grand Prix events, we got no clue as to his plans, but perhaps we may hazard a guess that this means a monoposto Alfa. He was very keen that the 1,500 c.c. class in the Manx races should be for blown as well as unblown cars, so as to give other foreigners a chance to show what they could do, and he intends entering the Delage if eligible in the smaller race.

Another Delage is to be seen in the Island too, this one being driven by Oliver Bertram. This is a two-litre car, and reputed to be the one with which Benoist won the French Grand Prix in 1925.

HERE AND THERE

Douglas I.O.M. Motor Races.

We understand that an alteration in the suggested course for the Round the Town race next July has been planned. Instead of using the whole length of the Promenade, it is proposed to use a road running up into the town about half a mile from the Jubilee Clock and to rejoin the original course at Prospect Hill. The turning is opposite the " P " in " Promenade " on the plan published in MOTOR SPORT for October, and the other points are also shown there.

The alteration of route reduces the length of the course about quarter of a mile and will involve a right-angle corner leaving the Promenade, another at St. Thomas's Church, and a hill with a gradient of about 1 in 20. Finch Road, as it is called, enters Prospect Hill in a direction almost opposite to that of the course, so that the corner round the Government Offices will be almost a hairpin, with an outward camber if taken too wide.

Victoria Street, which will be cut out of the course by the new plan, is the principal shopping centre of Douglas, and the shop-keepers will doubtless be relieved at not having their affairs upset by the street being closed. The south end of the Promenade is inclined to be crowded when the Steamers land their passengers nearby, and probably this also had something to do with the decision.

There are rumours of sandbanks being used on the Promenade to cut down the speed of the big cars. Let us hope that the alteration just made will be considered sufficient handicap for them, otherwise all the fast bits, which are undeniably exciting viewpoints, will be lost.

Monte Carlo Rally Entries.

On going to press we hear that 30 entries have so far been received for the Monte Carlo Rally, full details of which appeared in our December issue. The list, which contains 13 British cars, is as follows :—

M. Vasselle (Hotchkiss), G. de Lavalette (Peugeot), H. E. Symons (Sunbeam), Sq. Ldr. J. Fullerton (Sunbeam), Baron de Montpellier-M. Schaar (Chrysler), F. Lecot (Rosengart), H. Brisson (Mathis), Maj. D. E. M. Douglas-Morris (Invicta), H. Th. van Marken (Chrysler), J. Bignan (Peugeot), C. de Cortanze (Peugeot), Mrs. Montague-Johnstone (Riley), Frau. L. Bahr (Adler Trumpf), Mme. M. Mareuse (Peugeot), Mme. Rouault-M. Quinlin (Salmson), L. Braillard (Bugatti), P. E. Cremetti (Riley), C. Schade (Mercédès-Benz), Lt. Cr. C. M. Maltby (Riley), F. de Ribeiro-Ferreira (Delage), A. C. Lace (Invicta), Ph. Runciman—D. E. Cabral (Bugatti), F. Longman (Marlborough-André), J. Broere (Nash), Rupert S. G. Riley (Riley), G. F. Dennison (Riley), V. E. Leverett (Riley), J. Hobbs (Riley), D. M. Healey (Invicta).

An Adventure in Oil.

The writer once having visited an oil refinery, the romance of this great industry has never ceased to be an attraction. This enthusiasm was recently revived by reading a booklet received from the Shell-Mex-B.P. concern entitled " An Adventure in Oil " by E. P. Leigh-Bennett.

The booklet is the outcome of " some days spent in the company of men behind the job," and describes in vigorous, conversational prose the activities and appearance of the great Shell-B.P.refineries in the United Kingdom, at Shellhaven, Llandarcy, Stanlow, Ardrossan, Grangemouth, Uphall and Pumpherston.

" An Adventure in Oil " is beautifully produced. The varnished cover is a close-up photographic reproduction of the surface of an oil-ditch, with great discs of shiny oil. Then, too, there are 13 full page photographs, and a very useful coloured chart at the end showing all the products derived from the original Crude Oil.

Oil !

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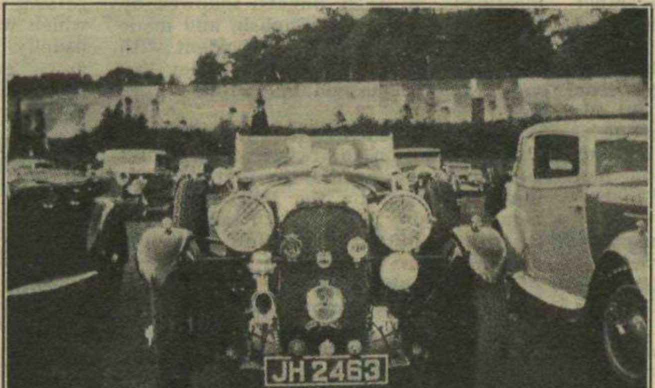
LAGONDA



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SIMPLIFIED CONTROL

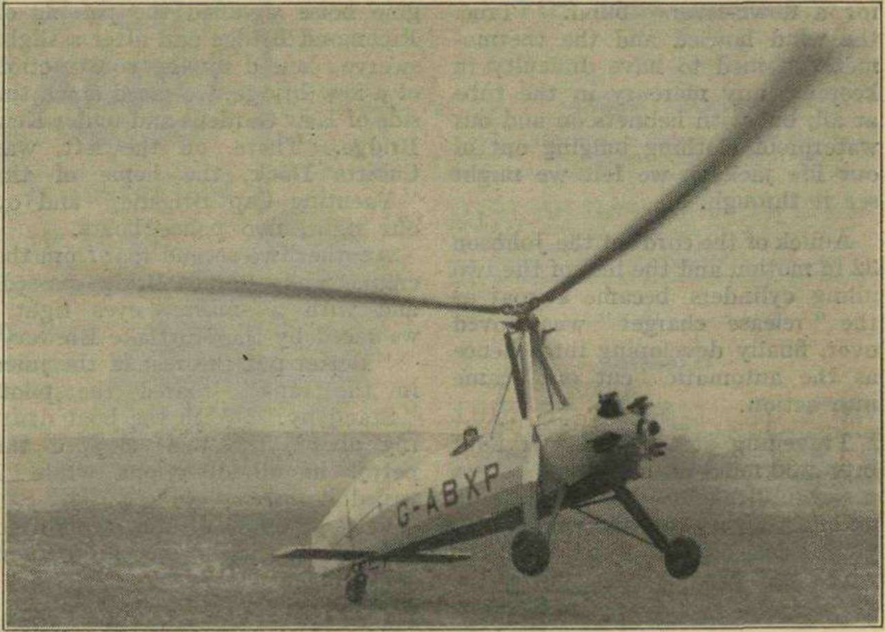
A NEW AUTOGIRO WITH TILTING ROTOR.

THE dream of the aeroplane inventor has always been to design a machine capable of taking off and landing almost vertically. The Autogiro, with its horizontal rotor which allows the machine to land at quite low speeds in a confined space, has been the nearest practical fulfilment of this ideal.

On the models produced up to now the rotor shaft has been installed in such a way that its axis is vertical when the machine is in flight, so that its lift can only be exerted in this direction, and lateral control was carried out by means of ailerons on the trailing edges of stumpy wings, while elevators on the normal type of tail assembly directed its movements in the looping plane.

The latest development is to mount the rotor on a movable head, which can be tilted in any direction by the movement of two vertical streamlined members connected with the joy stick. The auxiliary planes and their ailerons are no longer required, which must reduce the drag on the machine very considerably, and the shock-absorbing legs are carried straight up to the fusilage. A tail plane is still used, but elevators are no longer required. On the cabin machine, incidentally, the joy stick is attached directly to the movable head and projects downwards into the cabin.

The fact that the axis of the rotor can be tilted should improve the take-off distance materially, and the photograph confirms this. The reduction of drag effected on the latest autogiro should put it on a more equal footing as regards speed with aircraft of similar power and of orthodox design.

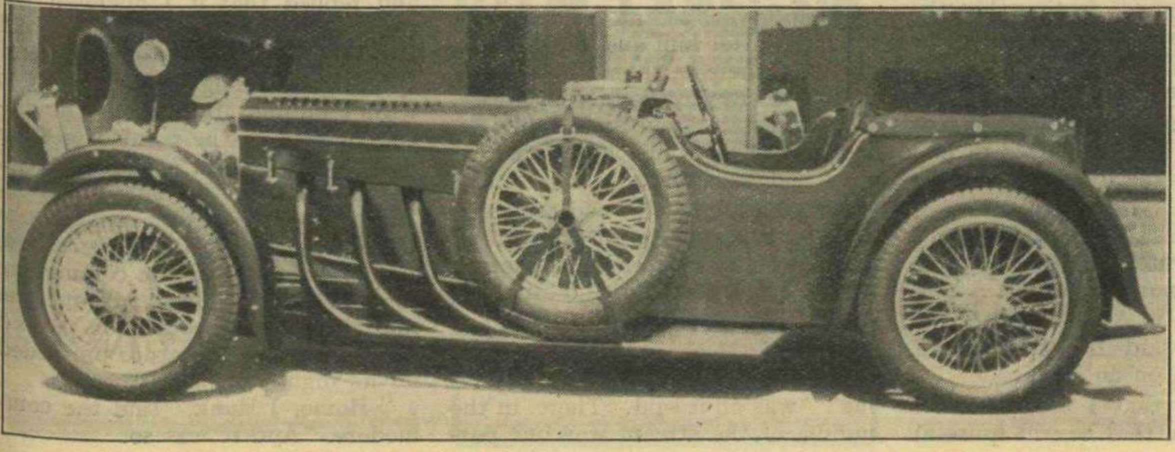


The new Autogiro with tilting rotor. [By courtesy of "Flight."

MRS. MOLLISON'S GREAT FLIGHT.

WHEN Miss Amy Johnson made her famous solo flight to Australia, she became immediately the most celebrated lady-pilot in the world. Now she has set the seal on this reputation, in addition to proving herself to be one of the most intrepid and skilful pilots of either sex, by setting up a new record from London to the Cape in 4 days 6 hours 53 minutes, and following this up with a new record for the return journey in 7 days 7 hours and 5 minutes.

These wonderful flights have so many aspects worthy of praise that it is difficult to know where to begin. As Mr. F. G. L. Bertram, Deputy Director of Civil Aviation, who represented the Secretary of State for Air at the reception at Croydon Aerodrome remarked: "I do not know which we admire most; your ability as a pilot, as navigator, or as a mechanic, or your remarkable pluck, perseverance and indomitable endurance during the course of your flight."



The Latest Frazer-Nash Model, with Super-Charged O.H.V. Engine.

A QUESTION OF DIRECTION.

TWO MEMBERS OF THE J.M.B.C. HAVE A DAY OUT.

THE assembled company said we were mad. There are, however, degrees of madness; and we were merely going for a down-river 'blind.' True, the wind howled and the thermometer seemed to have difficulty in keeping any mercury in the tube at all, but with helmets on and our waterproof clothing bulging out of our life jackets, we felt we might see it through.

A flick of the cord set the Johnson 32 in motion and the hiss of the two idling cylinders became a roar as the "release charger" was moved over, finally developing into silence as the automatic 'cut out' came into action.

Travelling at 30 miles per hour into a 30 miles an hour wind causes a certain draughtiness, and with an an effort we secured the wildly flapping sides of our flying helmets, while the boat streaked over the waves with that gentle clatter so beloved by all those who "outboard."

A momentary increase in the engine noise signified the passing of Richmond Bridge and after a slight swerve, caused by the construction of a new bridge, we raced down the side of Kew Gardens and under Kew Bridge. There, on the left, was Cubitts Dock, the home of the "Yachting Cap Brigade," and on our right, two police boats.

Another two second roar from the engine while Barnes Bridge passed, and with a smart "eyes right," we raced by the Mortlake Brewery.

"Better put the rest of the juice in the tank," roared the pilot. "Stand by." With the boat drifting about, the pilot slopped the petrol in all directions while I wiped it up.

Once again the Johnson emitted its preliminary roar, becoming silent as the boat planed.

"Funny," said the pilot, "the wind seems to have changed." So it had.

"Why, hang it; there are two more police boats. The river's full of police." He was right. That made four police boats in about half a mile. A most unusual thing. My ponderings, however, were suddenly interrupted by a muffled "Great Snakes," from the pilot.

"There's Cubitts Dock again. There aren't two of them. Are there?"

I began to see why the wind had changed. It also began to dawn upon me why we had encountered four police boats.

As we turned the boat around, the pilot leaned towards me.

"Old man," he said, "if this leaks out, we're ruined, is 'mum' the word?"

And with a nod, I murmered "Mum it is."

A-WHALING WE WILL GO!

"WELL," said the commodore, "this is one day I would *not* go outboarding." He stood framed in the window of Messrs. Power Craft Services' workshop, where members of the Junior Motor Boat Club store their engines and discuss technicalities.

The rain outside beat down on the water causing thousands of little fountains, while the occupants of a passing police boat looked depressed.

"You know," continued the commodore, "I have a feeling that the mid-day whisky will have to be discontinued. I would have sworn I saw a whale, just then."

The rain seemed to be easing slightly, and I walked over to him and gazed at the dreary stretch of river.

Suddenly, a large black fin reared out of the water, followed by the back of an enormous fish. A porpoise, probably.

"Phew!" said the commodore, and sat down on an Evenrude.

I told him that I too, had seen his whale, and that he was quite all right. We stood gazing at the river and were soon rewarded by a reappearance of the "whale."

"Come on," yelled the commodore, and, seizing my precious Watermota by the exhaust pipe, made off down the slipway. A few moments saw the engine in position on the speed dinghy and the steering wires clipped on.

"We'll need these," muttered the commodore, and placed three boat hooks in the boat.

Our porpoise had been making his way up river, so, at full throttle, we raced after him and, on reaching the spot where he should have been, cruised about waiting for him to rise. He seemed a long time about it, so we asked some lightermen if they had seen him.

They had not. Nor had they seen any pink elephants or kangaroos. They promised, however, to return him to us, should they find him.

Our attention, which had begun to wander, was suddenly arrested by a voice, loud and clear. "Lumme!" was all it said. There, in the middle of the stream was our porpoise. We raced to the spot, of course, only to see him rise some distance away. So we raced to the spot and watched him rise some distance away. Then we raced after him and watched him rise some distance away. A little thought seemed advisable. While the boat was drifting down the stream with a silent motor, I asked the commodore how he intended to catch the thing, anyway. I still think that this is quite a reasonable question, but the commodore seemed annoyed, and replied that if I operated the boat with more intelligence and foresight, he might have a chance of spearing the thing; and anyway it wasn't raining any more. The discussion was on the point of getting noisy when the fin appeared ahead of us, coming in our direction. Silently we stood up; boat hooks raised. Presently, the porpoise rose right beside us and the commodore made a mighty lunge. About one millimeter of the boat hook pierced his hide and the creature proceeded on its dignified journey.

"Home, I think," said the commodore. And it was so.

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1928 ALFA-ROMEO 1½-litre 6-cylinder 4-door saloon, recently thoroughly overhauled and in faultless condition, taxed, £195. Apply Box 27, c/o MOTOR SPORT.

1928 1½-litre ALFA-ROMEO drop-head coupé by Young of Bromley, nice condition. Apply Box 28, c/o MOTOR SPORT.

80 m.p.h. 1929 ALFA ROMEO 1½-litre 2-seater sports. 6 cylinder engine with twin overhead camshaft. In perfect condition mechanically. Owner going abroad. Will take £450. No dealers.—Box Q 102 MOTOR SPORT.

22-90 Sports 4-seater ALFA ROMEO fitted with chromium plated radiator and many extras. 6 inch rev. counter. Body just been re-painted bright red. Wonderful condition throughout. Cost £1,500. A very fast car with rapid acceleration. A real Bargain. £155.—Q 103 MOTOR SPORT.

ALVIS

12-50 1927 open 4-seater sports ALVIS. This car has only had one owner and has been carefully kept. Recently overhauled and re-painted in black with blue wheels. Extras include "Brooklands" steering wheel, fog lamp, 6 inch speedometer and rev. counter, radiator stoneguard, etc., etc. A very fast touring car. Price £110.—Box Q 101 c/o MOTOR SPORT.

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£475 1932 ASTON-MARTIN 12-90 h.p. close-coupled coachbuilt 4-door safety saloon, dual-tone finish, 4 speeds, 2 carbs., every fitment, few hundred miles, indistinguishable new, marvellous performance, cost £750.—Box 112, c/o MOTOR SPORT.

BUGATTI

1927 Type "40" open 4-seater BUGATTI with streamlined tail, painted blue with black wheels. This car has just had £50 spent on it and is in perfect condition throughout. Fitted with Ashby radiator guard, spring spoke steering wheel by Rene Thomas and rev. counter, etc. Capable of 70 m.p.h. Cruising speed 60 m.p.h. £175. No dealers.—Box Q 104, c/o MOTOR SPORT.

1924 11.9 h.p. Brescia Bugatti 3-seater, very fast, recently rebored by Laystall; £35.—Apply Box No. 99, MOTOR SPORT (1929), LTD., 39, Victoria Street, S.W.1.

BUGATTI, Genuine 1930 1½-litre type 40 Grand Sports 4-seater, cream and blue, carefully used, small mileage, exceptionally fast, first-class condition throughout, £195. Apply Box A511, c/o MOTOR SPORT.

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FRAZER NASH Cars, Falcon Works, London Road, Isleworth (Hounslow 3172) have for disposal a number of reconditioned cars.—Full particulars on application.

HANN-SPECIALS

SPECIALLY tuned sports cars of any reputed make supplied. Tommy Hann, 1, Albemarle Street, London, W.1. Regent 2859.

H.E.

SPECIAL short chassis Speed Model 13 h.p. fitted very low Vanden Plas type body. Original 1924 chassis but re-conditioned throughout recently. Re-cellulosed and chromium plated. Bentley performance and appearance at low upkeep. 30 miles per gal. Box 114, c/o MOTOR SPORT.

HISPANO-SUIZA.

1926 (late) 37-8 h.p. HISPANO-SUIZA sports man's 2-door saloon, fitted with starter-dynamo lighting, clock, speedometer, petrol gauge, illuminated dash, 3 interior lights, high-beam headlights with dimming device, windscreen wiper, electric horn, 2 spare wheels, 2 concealed luggage boxes, powerful front-wheel brakes, disc wheels, adjustable arm-chair and bucket seats, Triplex glass throughout and every conceivable fitment and refinement, finished white with black moulding, head, wings and wheels, chromium plating and upholstered in hide; the car has only done a very small mileage, is definitely indistinguishable from new and has a really marvellous performance in running, will certainly appeal to the most critical eye as being the last word in motor luxury, cost nearly £3,000, offered by us at £295. Apply O502, c/o MOTOR SPORT.

Motor Sport Classified Advertisement Section—*continued.*

USED SPORTS CARS FOR SALE (*continued*).

LAGONDA

1930 Model 3-litre special sports LAGONDA 4-door fabric saloon, finished black, green leather upholstery, smart in appearance tax paid. Box No. 117, c/o MOTOR SPORT.

1929 3-litre Lagonda 6-cylinder sports tourer, the whole car in excellent condition throughout. Spot-light, "Brooklands" Steering Wheel, rev. counter. 100 m.p.h. Speedometer. Just been repainted in Le Mans Green with black wheels. £750. No offers.—Box P.671, c/o MOTOR SPORT.

LEA-FRANCIS

LEA-FRANCIS 1930 Ulster T.T. sports 2-seater, supercharged, exceptional condition throughout. £195. Apply O.P.503, c/o MOTOR SPORT.

M.G.

1929 M.G. 14/40 2-seater. Red and aluminium, very clean, small mileage. £105. Box No. S.83, c/o MOTOR SPORT.

£50 ! ! M.G. 14-40 Super-sports 4-seater, specially finished in cream and red, wire wheels, servo f.w.b., new set side curtains and hood, leather upholstery, bucket seats, good tyres, really smart and fast car. Apply Box 82, c/o MOTOR SPORT.

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USED SPORTS CARS FOR SALE (*continued*).

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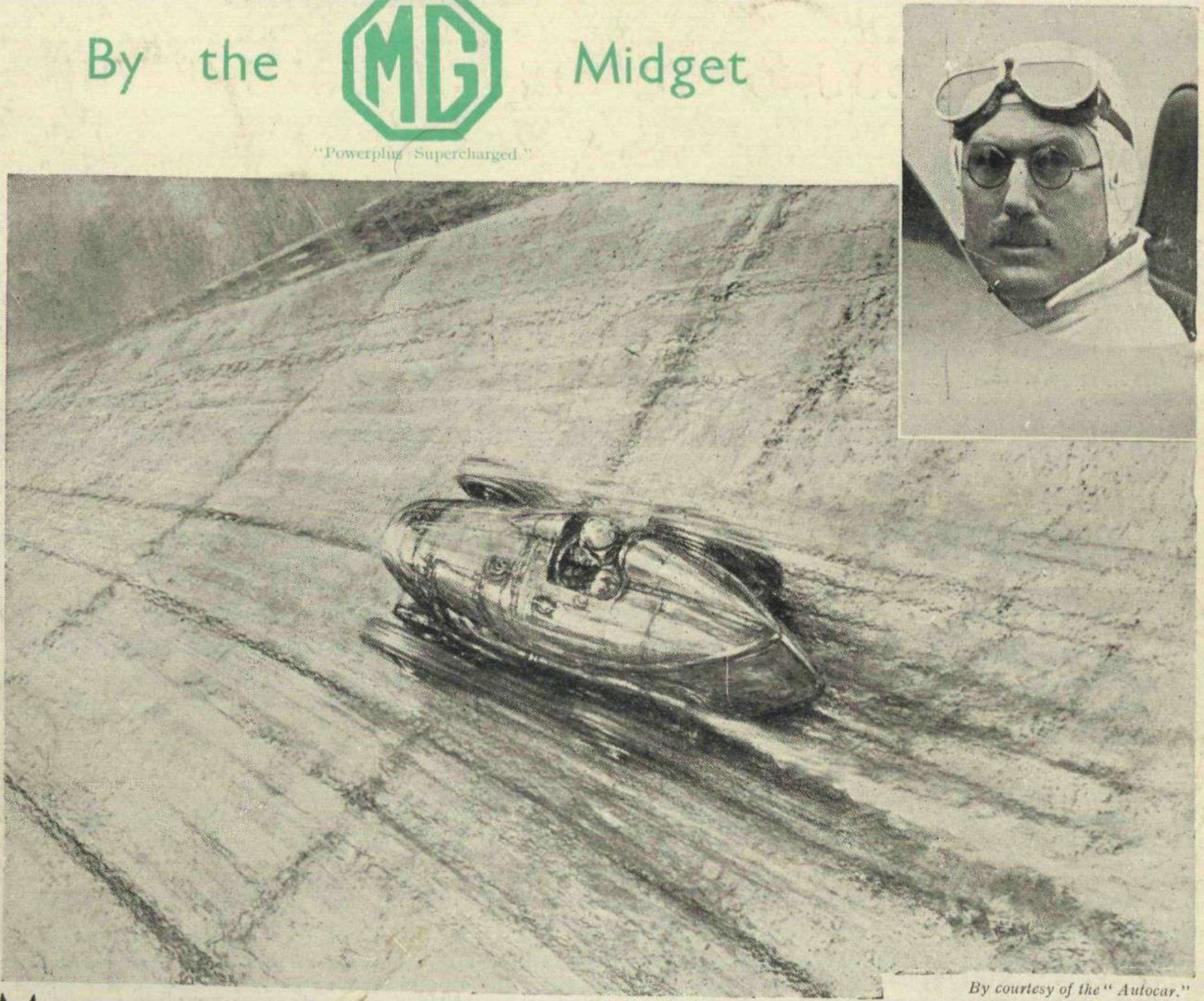

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